

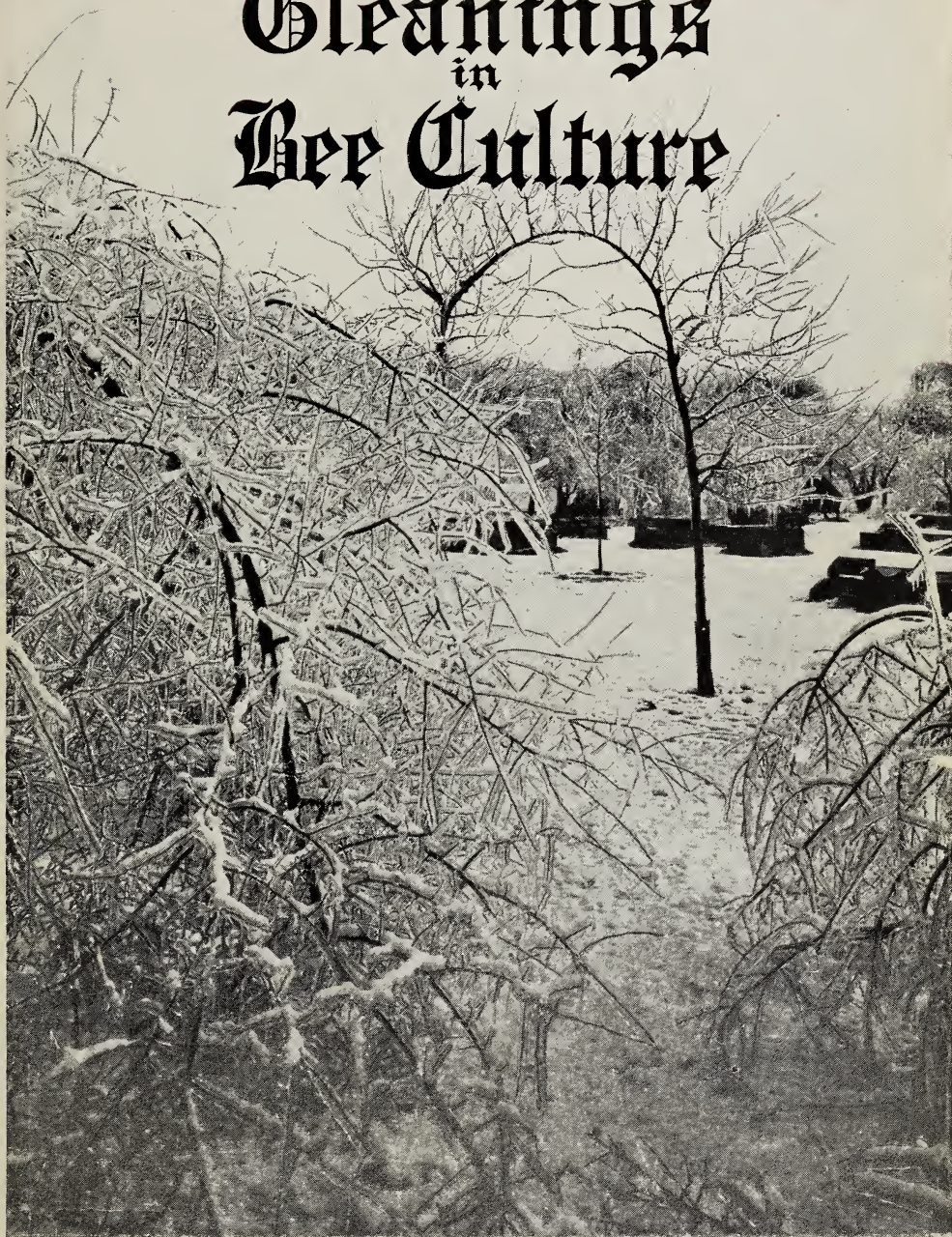
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DEC 23 1916



Gleanings in Bee Culture



WHY NOT

Order Your Supplies for Next Season Now?

This last season was an unusual one and beekeepers felt the need of supplies during the honey season. It meant a loss to them if not on hand. Freight this year has been slow for some reason. Why not be forehanded and have the goods on hand when wanted? We try to get goods off promptly but the railroads were slow in making delivery—a month or more in some instances. Goods ordered now carry 2 per cent discount during December. Send in your order just as soon you find out what you require and we will take care of it promptly.

F. A. SALISBURY, Syracuse, New York
1631 West Genesee St.

Seasonable Goods

- Tenement Winter Cases
- Buckeye Bee Hives
- Shipping Cases
- Five-gallon Cans
- Five and Ten Pound Pails

Two per cent Discount on Goods for Next Year's Use

M. H. Hunt & Son, 510 N. Cedar St., Lansing, Mich.



Established 1885

Send for our 64-page free catalog of Beekeepers' Supplies—full of information regarding bee fixtures, etc. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co., High Hill, Mo.
Montgomery County

When Ordering Supplies

remember we carry a full stock and sell at the lowest catalog price. Two lines of railroad—Maine Central and Grand Trunk. Prompt service and no trucking bills.

THE A. I. ROOT CO., Mechanic Falls, Maine.
J. B. MASON, Manager

SHIPPING-CASES FOR COMB HONEY

Don't make the mistake of putting a fine lot of section honey in poor shipping-cases. It will lower the price to you and damage your future sales. "Falcon" cases are A No. 1, and will be a credit to any crop of honey. Prices are as follows:

Shipping-cases in Flat, without Glass.

| | | | | |
|--|-----|---------|------|---------|
| No. 1....holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing 4..... | 10, | \$2.00; | 100, | \$18.00 |
| No. 3....holding 12 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing 8..... | 10, | \$2.00; | 100, | \$18.00 |
| No. 1½....holding 24 sections, $4\frac{1}{4} \times 1\frac{1}{2}$, showing 4..... | 10, | \$1.90; | 100, | \$17.00 |
| No. 6....holding 24 sections, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$, showing 4..... | 10, | \$1.80; | 100, | \$16.00 |
| No. 8....holding 24 sections, $4 \times 5 \times 1\frac{1}{2}$, showing 4..... | 10, | \$1.80; | 100, | \$16.00 |

Shipping-cases with Glass.

| | with 3-inch glass | with 2-inch glass |
|--|---------------------------|-------------------|
| No. 11...Same as No. 1...Nailed, 35c; in flat, 1, 25c; 10, | \$2.30; 100, \$21.00..... | 100, \$20.00 |
| No. 13...Same as No. 3...Nailed, 22c; in flat, 1, 15c; 10, | \$1.40; 100, \$12.50..... | 100, \$12.00 |
| No. 11½...Same as No. 1½...Nailed, 35c; in flat, 1, 25c; 10, | \$2.20; 100, \$20.00..... | 100, \$19.00 |
| No. 16...Same as No. 6...Nailed, 30c; in flat, 1, 22c; 10, | \$2.10; 100, \$19.00..... | |
| No. 18...Same as No. 8...Nailed, 30c; in flat, 1, 22c; 10, | \$2.10; 100, \$19.00..... | |

Red Catalog Postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

where the good beehives come from.

HONEY GRADING RULES

GRADING RULES OF THE A. I. ROOT COMPANY, MEDINA, OHIO.

In harmony with the Federal net-weight regulations and the statutes of many states, all comb honey we handle is figured with the weight of the section box as well as the case excluded. To get the net weight, deduct the weight of the empty case and 1 lb. 8 oz. for the weight of 24 sections (1 oz. each).

COMB HONEY.

Extra Fancy.—Sections to be evenly filled, combs firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side. No section in this grade to weigh less than 14 oz. net. Cases must average not less than 22 lbs. net.

Fancy.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white, and not more than six unsealed cells on either side exclusive of the outside row. No section in this grade to weigh less than 13 oz. net. Cases must average not less than 21 lbs. net.

No. 1.—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain; comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row. No section in this grade to weigh less than 11 oz. Cases must average not less than 20 lbs. net.

No. 2.—Combs not projecting beyond the box, attached to the side not less than two-thirds of the way around, and not more than

60 unsealed cells exclusive of the row adjacent to the box. No section in this grade to weigh less than 10 oz. net. Cases must average not less than 18 lbs. net.

CULL COMB HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with combs projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than 10 oz. net.

EXTRACTED HONEY.

This must be well ripened, weighing not less than 12 lbs. per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained clean light honey may be used for extracted honey.

EXTRACTED HONEY NOT PERMITTED IN SHIPPING GRADES.

Extracted honey packed in second-hand cans, except as permitted above.

Unripe or fermenting honey, or weighing less than 12 lbs. per gallon.

Honey contaminated by excessive use of smoke.

Honey contaminated by honey-dew.

Honey not properly strained.

GRADING RULES OF THE COLORADO HONEY-PRODUCERS' ASSOCIATION, DENVER, CO.,
FEBRUARY, 6, 1915.

COMB HONEY.

FANCY.—Sections to be well filled, combs firmly attached on all sides and evenly capped except the outside row next to the wood. Honey, comb, and cappings white, or slightly off color; combs not projecting beyond the wood; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 13½ gross. The top of each section in this grade must be stamped, "Net weight not less than 12½ oz."

The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER ONE.—Sections to be well filled, combs firmly attached, not projecting beyond the wood, and entirely capped except the outside row next to the wood. Honey, comb, and cappings from white to light amber in color; sections to be well cleaned. No section in this grade to weigh less than 11 oz. net or 12 oz. gross. The top of each section in this grade must be stamped, "Net weight not less than 11 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

NUMBER TWO.—This grade is composed of sections that are entirely capped except row next to the wood, weighing not less than 10 oz. net or 11 oz. gross; also of such sections as weigh 11 oz. net or 12 oz. gross, or more, and have not more than 50 uncapped cells all together, which must be filled with honey; honey, comb, and cappings from white to amber in color; sections to be well cleaned. The top of each section in this grade must be stamped, "Net weight not less than 10 oz." The front sections in each case must be of uniform color and finish, and shall be a true representation of the contents of the case.

Comb honey that is not permitted in shipping grades

Honey packed in second-hand cases.
Honey in badly stained or mildewed sections.
Honey showing signs of granulation.
Leaking, injured, or patched-up sections.
Sections containing honey-dew.
Sections with more than 50 uncapped cells, or a less number of empty cells.
Sections weighing less than the minimum weight.
All such honey should be disposed of in the home market.

EXTRACTED HONEY

This must be thoroly ripened, weighing not less than 12 pounds to the gallon. It must be well strained, and packed in new cans; sixty pounds shall be packed in each five-gallon can, and the top of each five-gallon can shall be stamped or labeled, "Net weight not less than 60 lbs."

Extracted honey is classed as white, light amber, and amber. The letters "W," "L A," "A," should be used in designating color; and these letters should be stamped on top of each can. Extracted honey for shipping must be packed in new substantial cases of proper size.

EXTRACTED HONEY

This must be well ripened, weighing not less than 12 pounds per gallon. It must be well strained; and, if packed in five-gallon cans, each can shall contain sixty pounds. The top of each five-gallon can shall be stamped and labeled, "Net weight not less than 60 lbs." Bright clean cans that previously contained honey may be used for strained honey.

Honey not permitted in shipping grades.

Extracted honey packed in second-hand cans.
Unripe or fermenting honey weighing less than 12 lbs. per gallon.
Honey contaminated by excessive use of smoke.
Honey contaminated by honey-dew.
Honey not properly strained.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy FANCY AND NUMBER ONE WHITE COMB HONEY, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—

White Clover extracted and Amber extracted.
A few cars of California Water White Sage.
A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"

204 Walnut Street.

CINCINNATI, O.

HONEY MARKETS

CHICAGO.—Comb honey drags; otherwise there is not much change in values other than a stronger tone in extracted of all grades.

Chicago, Ill., Dec. 11. R. A. Burnett & Co.

DETROIT.—Extracted honey is scarce; selling from store, 9 to 10; comb has a good demand at 15 to 16; extra fancy 16 to 17.

Detroit, Mich., Dec. 7. F. P. Reynolds Co.

CLEVELAND.—Supply and demand are both moderate; very little call for any except fancy and No. 1 grades. We quote fancy, per case, \$3.75 to \$4.00; No. 1, \$3.50 to \$3.65; No. 2, \$3.25 to \$3.40. Cleveland, O., Dec. 6. C. Chandler's Sons.

PITTSBURG.—No change in price or condition to report. We quote extra fancy comb, \$3.75 to \$4.00; No. 1, \$3.50 to \$3.75; fancy buckwheat, \$3.25 to \$3.50; No. 1, buckwheat, \$3.00. W. E. Osborn Co. Pittsburgh, Pa., Dec. 8.

TORONTO.—Prices are unchanged since last issue. Comb honey which is now on the market sells as follows: No. 1, per case, \$2.40 per doz.; No. 2, \$2.25. Eby-Blain Limited.

Toronto, Ont., Dec. 6.

HAMILTON.—Honey is going slowly this week. Only small lots are moving. We quote extra fancy, per case, \$2.50; No. 1, \$2.25; No. 2, \$1.60. White extracted honey, per lb., brings 12 in 60-lb. tins; light amber, in cans, 10. F. W. Fearman Co. Ltd. Hamilton, Ont., Dec. 7. MacNab Street Branch.

BUFFALO.—Receipts of honey are more liberal with trade very quiet and stock accumulating in receiver's hands. We quote extra fancy, per case, 15 to 15½; fancy, 14½; No. 1, 14 to 14½; No. 2, 11 to 13. White extracted honey brings 8 to 8½; light amber, in cans, 7½; amber, in cans, 6 to 7. Clean average yellow beeswax brings 32 to 33.

Buffalo, N. Y., Dec. 8. Gleason & Lansing.

BOSTON.—The sale of honey is somewhat neglected owing to Thanksgiving trade, holiday goods taking the lead. A healthy demand is present most of the time. We quote extra fancy comb honey, per case, \$3.50; fancy, \$3.25; No. 1, \$3.00; No. 2, \$2.50. White extracted honey brings 9½ to 12, according to quality and size of package.

Boston, Mass., Dec. 7. Blake Lee Co.

ST. LOUIS.—Southern extracted and strained—bright amber in barrels at 5½ and 6c per pound, in cans at 6 and 6½; dark ½ and 1c less. Comb, in cases—amber at 10 and 12c; dark and inferior at 9 and 11c per pound; broken and leaking at 7 and 8c; fancy clover at 14 and 17c. Comb, in cases (24 cartons)—fancy clover at \$2.75 and \$3.00, amber at \$2.50 and \$2.75, Southern at \$2; inferior less.

—St. Louis Globe Democrat.

KANSAS CITY.—The demand for honey is very limited, and the high freight rates have curtailed the country consumption. Less honey is selling now than we ever knew at this time of the year. We quote fancy, per case, \$2.80 to \$2.90; No. 1, \$2.80 to \$2.90; No. 2, \$2.60 to \$2.65. Light amber extracted honey in cans brings 8; amber, 7½. Clean average yellow beeswax brings per lb. 25.

C. C. Clemons Produce Co.

Kansas City, Mo., Dec. 7.

SAN FRANCISCO.—Light demand on comb honey; trade generally well supplied; tendency is downward rather than firm market. Extracted of light grades in good request, and a free movement for all grades of extracted actually exists. White extracted is closely cleaned up, and wanted. Dealers find low grades in short supply. We quote extra fancy comb honey, per case, \$3.25 to \$3.50; fancy, \$3.00 to \$3.10; No. 1, \$2.40 to \$2.65; No. 2, \$1.50 to \$2.00. White extracted honey per lb. is nominal; extra light amber, in cans, 7½ to 8; light amber, in cans, 7 to 7½; amber, in cans, 5 to 6½. Clean average yellow beeswax brings 26 to 29. Leutzinger & Lane.

San Francisco, Cal., Nov. 23.

PHILADELPHIA.—Comb honey is moving slowly. There is a fair inquiry for extracted honey, all grades. There is a somewhat better demand for country beeswax at prices quoted. Extra fancy comb, per case, 16; fancy, 15 to 16; No. 1, 13 to 14; No. 2, 11 to 12; white extracted honey brings 8 to 9; light amber, in cans, 7 to 7½; amber, in cans, 6 to 7. Clean average yellow beeswax brings 29 to 31. Philadelphia, Pa., Dec. 7. Chas. Munder.

ALBANY.—Comb honey is moving slowly, but working off better than it would if weather were colder as usual this month. There is an increased demand for extracted, especially white clover or basswood. We quote fancy, per case, 15; No. 1, 14; No. 2, 11 to 13. White extracted honey brings 8 to 8½; light amber, in cans, 7½; amber buckwheat, in cans, 7. Clean average yellow beeswax, per lb. brings 30 to 32. H. R. Wright.

Albany, N. Y., Dec. 8.

LOS ANGELES.—These prices are what the retailer pays our wholesale customers, not what we are buying at. We quote extra fancy comb honey, per case, \$4.25; fancy, \$3.85; No. 1, \$3.25; No. 2, \$2.50. White extracted honey brings 8½; light amber, in cans, 8; amber, 7; in barrels, not used. Clean average yellow beeswax brings 35.

Los Angeles, Cal., Dec. 6. Geo. L. Emerson.

DENVER.—We quote fancy white comb honey, per case of 24 sections, \$2.84; No. 1 white comb honey, per case, \$2.70; No. 2, per case, \$2.57; white extracted honey brings 8½ to 9; light-amber extracted, 8 to 8½. The above are our jobbing quotations. We are in the market for beeswax, and are paying 28 cts. in cash and 30 in trade for clean yellow stock delivered here.

The Colorado Honey-Producers' Ass'n.

Denver, Col., Dec. 1.

ST. LOUIS.—We have no great demand for comb honey, as weather so far is too mild. The supply here is fully ample for the demand. Extracted honey is moving much better, but prices remain about same as our last quotation. We quote extra fancy, per case, \$3.75; fancy, \$3.50; No. 1, \$3.00 to \$3.25; No. 2, \$2.50 to \$2.75. Light amber extracted honey in cans brings 9 to 10; amber, 60-lb. cans, 7½ to 8; in barrels, 7. Clean average yellow beeswax brings 31½.

R. Hartmann Produce Co.

St. Louis, Mo., Dec. 7.

TEXAS.—The honey is just about all in, also out. The last honey was disposed of as fast as could be gotten ready for the market by beekeepers of this section, also at one and two cents better than the prices for earlier honey, notwithstanding the earlier honey was of better grade. We quote No. 1 comb honey, per case, 10 to 11 cts. in two 60-pound cans; No. 2, amber bulk in two 60-lb. cans, 7 to 9. Light-amber extracted honey, in cans, 8 to 9; amber, in cans, 6 to 8. Clean average yellow beeswax brings 26 to 28.

J. A. Simmons.

Sabinal, Texas, Dec. 8.

LIVERPOOL.—Steady prices in good demand; 1800 packages sold as follows: Jamaica, palish, \$10.56 per cwt.; Jamaica, dark to amber, \$8.16 to \$9.84; St. Lucia, dark, \$8.16 to \$9.00; Haiti, dark, \$7.92 to \$9.72; Cuban, dark to pale, \$7.44 to \$12.60; San Domingo, dark to amber, \$8.52 to \$9.60; Honolulu, \$9.00 to \$9.84; Chilian, pile X, \$10.80 to \$11.52; Chilian, pile 1, \$9.84 to \$10.32; to \$8.52. Firm Jamaica beeswax, dark to good pale, brings \$37.02 to \$40.63 per cwt.; Chilian, \$38.83 to Chilian, pile 2, \$9.12 to \$9.60; Chilian, pile 3, \$8.16 to \$39.48; West African, \$38.88; East African, \$39.48. Liverpool, Eng., Nov. 24. Taylor & Company.

MEDINA.—The offerings of comb continue unexpectedly heavy, and western stocks are offered by distributors in the East in lots of ten cases or more at ridiculously low prices. Nothing could be more detrimental to the market than the present offerings. (See Wesley Foster's comments in GLEANINGS, Dec. 1.) We hope, however, for an improvement after the holidays, as we do not believe the stocks are as excessive as offerings indicate. No new developments in the extracted market. The A. I. Root Co.

HONEY MARKETS

continued

SYRACUSE.—There has seemed to be less honey retailed by grocers for the last week or two than for some time, which is affecting the jobbing trade to a degree. There also seems to be a goodly supply in the hands of the dealers at present. Extra fancy, per case, brings \$3.80; fancy, \$3.60; No. 1, \$3.36; No. 2, \$3.00. White-extracted honey brings 8 to 9; light amber, in cans, 8; amber, in cans, 7 to 8. E. B. Ross.

Syracuse, N. Y., Dec. 9.

FLORIDA. — The demand just now is poor. Very little is on hand at present. Almost all on hand is of poor grade. Some little first-class stock is on hand. We quote white extracted honey, per lb., 8c; light-amber, in barrels, 5; amber, in barrels, 4. Clean average yellow beeswax brings 30 cts.. Wewahitchka, Fla., Dec. 7. S. S. Alderman.

CUBA.—Light-amber extracted honey, in barrels, brings 48 to 49 cts. per gallon; amber, in barrels, 48 to 49. Clean average yellow beeswax brings 31. Matanzas, Cuba, Dec. 8. A. Marzol.

CANDY

Bees sometimes starve with plenty of honey in the hive. Why not avoid this risk by placing a plate or two of candy on the frames when you pack for winter? It is a good life insurance. Send for circular also catalog of supplies.

H. H. Jepson, 182 Friend St., Boston, Mass.

PATENTS

Practice in Patent Office and Courts
Patent Counsel of The A. I. Root Co.

Chas. J. Williamson, McLachlan Building
WASHINGTON, D. C.

The Youths' Companion

and Gleanings in Bee Culture, one year, \$2.75

BEE SUPPLIES

Send your name for new catalog.
Dept. T. CLEMONS BEE SUPPLY CO.,
128 Grand Avenue, Kansas City, Mo.

Deposit your Savings with The SAVINGS DEPOSIT BANK CO.

of MEDINA, O.

The Bank that pays 4%

Write for Information

A. I. SPITZER
PRESIDENT

E. R. ROOT
VICE-PRESIDENT

E. B. SPITZER
CASHIER

ASSETS OVER ONE MILLION DOLLARS

STRAWBERRY (OF ALL KINDS) PLANTS

Fine stock of the wonderful Everbearing plants at right prices. Small fruit plants for farm and garden. Write for catalog. Return this ad. and several fruit-growers names for one-half dozen Everbearing plants free.

BRIDGMAN NURSERY CO., BOX 44, BRIDGMAN, MICH.

BEESWAX WANTED

for manufacture into
"SUPERIOR FOUNDATION"
on shares (Weed process)

Our terms assure cheaper foundation
SUPERIOR HONEY CO., Ogden, Utah
Wanted: Extracted honey

PENNSYLVANIA BEEKEEPERS

Our catalogs now out. Postal will bring you one. Root's goods at Root's prices. Prompt shipment.

E. M. Dunkel, Osceola Mills, Pa.

SENT FREE! JUST OUT

Model 8 Daylite

Whiter - Brighter Than Gas or Electric, at 1/4 the Cost

WE SEND PREPAID, NO MONEY DOWN, 10 NIGHTS' FREE TRIAL. See it, try it, test it in any way you want in your own home, alongside any other light. Then if you feel like parting with it send it back at our expense. The trial costs you nothing. We take all the risk.

U. S. GOVERNMENT report shows mantle oil light more than 3 times as efficient as ordinary lamp. The Daylite is whiter and brighter than gas or electric, at 1/4 the cost. Pays for itself in a few months in oil saved. No smoke, no dirt, no odor. Uses common wick and is lighted same as ordinary lamp. Simple and safe, cannot explode. Only oil light guaranteed for 5 years. Only mantle light with telescoping tube; full details in complete illustrated catalog - It's FREE.

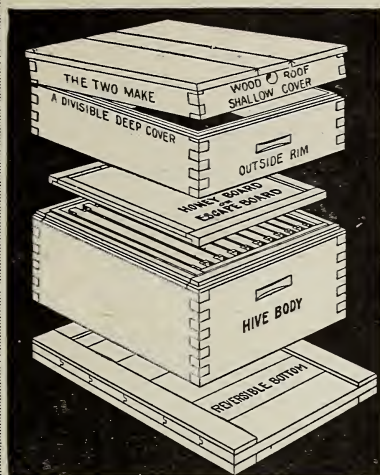
AGENTS WANTED. No money - no experience - needed. Five out of six buy the Daylite the minute they see it. Wanted in every home. No talking necessary. Sells itself. No capital required. We supply stock, all necessary equipment and protected territory. Men with rigs or autos are making \$6.00 to \$15.00 every day, month after month.

WRITE NOW FOR LAMP - FREE for ten nights' trial. Tell us if you have a rig or auto, whether you can work spare time or steady, your age, occupation, what territory you want and when you can start.

DAYLITE COMPANY, 221, Daylite Bldg., CHICAGO, ILLINOIS

BURNS
KEROSENE





PROTECTION HIVES

Price: \$14.75 for five hives, delivered to any station in the U. S. east of the Mississippi and north of the Ohio River, or \$13.00 F. O. B. Grand Rapids, Mich. Prices will have to be advanced slightly January 1.

Air spaces or packing as you prefer. Seven-eighths material in the outer wall, which means that they will last a lifetime. Used and endorsed as the best hive on the market by many prominent beekeepers of this and other countries.

Norwichtown, Conn., May 24, 1915. (Extract from letter and order) Our State Agricultural College has just been voted a sum of money to be used in the construction of an apiarian building and outfit. They are negotiating with me for some colonies, and I will furnish them in your Protection Hives, for I believe them to be the best on the market. ALLEN LATHAM.

Send for catalog and special circulars. We are the bee-hive people. Send us a list of your requirements for 1917 and let us figure with you. We want both large and small orders. We have many pleased customers in all parts of the country.

A. G. Woodman Co., Grand Rapids, Mich.

The Beekeepers' Review Announcement for 1917

Mr. Floyd Markham now holds the Gold Medal being offered by the Michigan State Beekeepers' Ass'n for the best honey produced in the State. This medal has now been won for the second time by Mr. Markham at our late convention. Mr. Markham also won all the first prizes on both comb and extracted honey at the Michigan State Fair at Detroit, this year. Mr. Markham is without a doubt the World's Champion Comb-honey Producer. How much would it be worth to you, Mr. Comb-honey Producer, to call at Ypsilanti and ask Mr. Markham all about how he proceeds to produce so much better comb honey than the average beekeeper? It would likely be worth a hundred dollars to you during a few years to come, what information you would get at such a visit. You can get it all for a dollar by subscribing for the Review for 1917, for Mr. Markham will write twelve articles for the twelve numbers of the Review during 1917, telling the entire procedure of securing the exhibition honey. None who aspire to greater things in bee-dom should fail to read how Mr. Markham accomplishes such results, which will appear in the Review during the entire year of 1917.

Mr. J. E. Crane is no stranger to the beekeeping fraternity. He has written much at different times relative to his method of beekeeping. We consider ourselves fortunate in securing Mr. Crane to write twelve articles for the Review for the year of 1917, covering the entire season with the bees. Mr. Crane's 40 years among the bees, as he will write it up for the Review, will be mighty interesting reading. In a book it would readily sell for a dollar. You will get this interesting series, including many other features, by subscribing for the Review for 1917.

E. D. Townsend, now owner of the Beekeepers' Review, used to produce comb honey on quite a

large scale. He originated the system now known as "Producing both comb and extracted honey in the same super." This system, if properly carried out, is one of the very best systems of comb-honey production that have been brought to light. The Editor of the Review has run large apiaries on this system of producing comb honey WITH ONLY 12% OF THE COLONIES IN THE ENTIRE APIARY SWARMING. An ideal system for out-yard work for comb honey. The Editor of the Review will write up this entire system of producing both comb and extracted honey in the same super for the pages of the Review for 1917. This series of articles alone ought to be worth many times the cost of the Review for a year.

Space forbids our mentioning more valuable contributions that will appear in the Review for 1917.

We will mention at this time that we are making arrangements with several of our very best honey-producers to furnish us material for the Review, written FROM ACTUAL EXPERIENCE of several years' standing. We will mention just one more of our 1917 correspondents who had 400 colonies of bees. He works the entire 400 colonies for extracted honey alone, in about 100 days, doing the work alone and securing very favorable crops. This party also sells his honey all in his home market at a price much above what is usually secured by producers. There will be many more valuable articles in the Review for 1917, including ALL the valuable papers read at the National Convention at Madison, Wis., next February. But we must stop, as space forbids us saying more about the valuable articles that will appear in the Review for 1917.

We hope there will be none of the readers of Gleanings so short-sighted as to miss sending in their dollars for the Review for 1917. Address

The Beekeepers' Review. Northstar, Michigan

HONEY-JARS

No. 25 1-lb. screw-cap, \$5.00 a gross. ½-lb. screw-cap jars, \$4.25 a gross. Discount on quantity.

HONEY

We have a fair stock of both extracted and comb honey. Price on application. If you have honey to sell, write us. Cat. of apiarian supplies and bees free.

I. J. STRINGHAM, 105 PARK PLACE, N. Y.
Apiaries: Glen Cove, L. I.

LOS ANGELES HONEY Co.
633 Central Bldg. . . . Los Angeles, Cal.

Buyers and Sellers
of Honey and Wax

Write us or Prices when in the Market

HOW ABOUT NEXT YEAR?

The season of 1916, just closed, has been a most unusual one. Beekeepers who did not fortify themselves early in the season by securing their hives, sections, and other goods, and having their equipment ready for the bees, found when the honey season was upon them that they were up against the following conditions:

Everybody wanted bee goods, dealers had depleted stocks on account of the unusual demand, manufacturers were several weeks behind on orders, their factories were working overtime. Some beekeepers were delayed, some disappointed, some got their goods when it was too late.

Now, Mr. Beekeeper, What are You Going to do about Next Season? ? ?

Prospects for a big Bee and Honey Season next year were never better than they are right now. PREPARE! Order your goods this fall. Write us or our dealer nearest you for a list of new prices owing to advances in raw material.

If you are not on our mailing list, write us at once and we will send you a catalog containing name of the distributor nearest you, and in this way you will also be sure to receive a copy of our new 1917 catalog when it is issued.

Lewis Hives and Sections and all other goods are made from the best material and are scientifically manufactured.

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GLEANINGS IN BEE CULTURE

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Entrances During Winter

It is important that winter entrances be small enough to exclude field mice. A couple of mice will ruin a colony in very short order; and they not only destroy the combs, but they keep the colony in a constant state of disturbance. It is an axiom now that a constant disturbance during winter is sure death to a colony. Many beginners, being anxious to see how their bees are coming on, make the mistake of opening the hives frequently. Fearing that the colonies will run short of stores they begin feeding; and feeding at such a time is likely to cause dysentery. On occasional very warm days when the bees are flying, a quick examination may be made if necessary; but it is far better to have the colonies so well cared for in the fall that no tampering will be needed until spring.

Keeping Comb Honey Over Winter

It should be kept in a room where the temperature does not go below 70 nor above 100 degrees. If it could be kept at 80 degrees F., it would be better. Comb honey will granulate more quickly in the early fall if subjected to extremes of temperature. If it is kept in an atmosphere of about 80 degrees F., before it starts to granulate, from November on till Jan. 1, there is not much danger that it will granulate afterward; but we advise holding it at a temperature as near that of a living-room as possible.

The large demand now for extracted honey will possibly stimulate the demand for comb honey later on. If kept in a warm room it will bring a fair price by next March or April; and the price will continue good until the new crop comes on.

This year of all years, producers and dealers who have comb honey should carefully watch it, and see that it is not subjected to changes of temperature. The producer or dealer who is compelled to carry over his honey until next season will not lose by it, and he may sell at a good figure.

The New Monthly Gleanings

AS announced in our issue of Nov. 1, GLEANINGS IN BEE CULTURE will become a monthly with its next issue, January 1, 1917. We have little to add to our original announcement of this important change in GLEANINGS' publication, except possibly to correct the wrong impression that the change from semi-monthly to monthly publication was to be made chiefly with a view of curtailing expense in these days of excessive cost for every kind of publishing. This was not at all the determining consideration in making the change. On the other hand, the fact is that our plans for publishing the new monthly GLEANINGS call for a larger financial outlay than that required for the semi-monthly. In size, in mechanical and artistic quality, in editorial amount and quality and in every other detail the new monthly will, we hope, surpass the former semi-monthly.

We wish to repeat with added emphasis what was said in our original announcement of the change, which was this: "The first and foremost purpose of the change from a semi-monthly to a monthly is to give the editors of GLEANINGS the needed time to make a better and handsomer journal." That expresses what was and is the one consideration in deciding upon the change from semi-monthly to monthly—to make a bigger and better and handsomer and more useful journal for our readers. As we further said in making our first announcement of the intended change: "There is no good reason for continuing a semi-monthly if it stands in the way of an improved monthly publication of a higher class."

We are glad to say that we have had some very satisfactory and explicit confirmation of this view from our readers. While some have written us expressing regret for the change from the semi-monthly to monthly, very many more of our readers have written us expressing approval of the change to the monthly, saying that a once-a-month publication for beekeepers

is sufficient, and that they would prefer to have GLEANINGS reach them in a single journal monthly than to receive it in separate journals twice a month. We believe that this judgment of a very great majority of our readers who have written us commenting on the intended change will be concurred in by most of GLEANINGS' followers.

We have intentionally and purposely refrained from drawing any highly colored picture of what the new monthly GLEANINGS is to be. We expect it to be a decided improvement on the old semi-monthly GLEANINGS. We are indeed enthusiastic about it, but we have repressed this enthusiasm so far as printing it, preferring to let fulfillment rather than promise furnish the basis on which our readers should judge us.

Accordingly, we shall submit the case of the new monthly GLEANINGS, without argument in advance, to the great jury of our readers, hoping for a unanimous verdict of approval when they have weighed the testimony that its first appearance will bring them.

Moving Bees During Midwinter; Location of Yards

DURING mid-winter it is easier to move bees a short distance than during summer. If they are put into a cellar they can be placed the following spring anywhere, altho Mr. Dadant, of the *American Bee Journal*, feels that it is desirable to put them back on their old location. During mid-winter or after settled cold weather has set in we have moved yards short distances without any trouble.

If bees are to be moved during winter, the question of location should be carefully considered. There are three important requisites: First, accessibility to a common highway; second, windbreaks; third, shade. If a yard is located in the middle of a piece of woods or pasture two or three hundred yards from the general roadway, it means that an automobile truck or even a horse and wagon will have difficulty in reaching the yard in early spring when the frost is coming out of the ground. It is very expensive and wasteful of time for one man or two men to tote supplies crosslots over soft ground, across creeks and fences.

The second requirement, windbreaks, is very important, especially if the bees are wintered outdoors. Experience is proving that, while winter packing is essential, a screen of natural windbreaks is even more

so. An artificial windbreak, such as a high board fence, is better than nothing; but better still are hedge fences, trees, or anything that will break the force of the wind from those directions whence the prevailing winds come. Over and over again we have found that our colonies that are well packed out in the open will either die or be weak in the spring, while those well screened would be in the best condition.

Shade is not essential, but quite helpful during hot weather and during the swarming season. It may be secured artificially by means of shade-boards; but small deciduous trees that shade the hives only during certain hours of the day and certain parts of the season are more convenient, and more comfortable to the apiarist.

During these winter months plans should be made to find good locations if extra ones are needed. It is important to select such positions as furnish these three requirements, as they not only mean economy but more honey in warm weather.

Drifting

THIS is a newly coined word that has been creeping into our nomenclature, and now for the first time finds a place in the A B C and X Y Z of Bee Culture. It means exactly what the word signifies—bees drifting from their homes by mistake into other hives. Young bees especially are inclined to drift at times. In their play-spells in spring and summer they will run out like a little swarm, and then gradually work back into the hive. One playspell begets another, and the result may be that there will be several colonies with a big demonstration in front. Young bees when out for the first time in the season after getting a considerable distance away from the parent hive will sometimes join the entrance where there is the largest number of bees flying, whether it is their own hive or not. The result is that one colony will be weakened and the other strengthened in numbers.

But the drifting that does real harm takes place when bees are set out of the cellar in early spring or when hives are placed too close together. Sometimes the drifting is aggravated when a high wind carries bees, young and old, clear across the yard, with the result that they will join almost any entrance, especially if they are a little confused as to where they belong. The effect of this is to weaken some and to give too many bees to the others. The former die of spring dwindling, and the latter from starvation.

Drifting is apt to occur where four hives are placed in a winter case because of the proximity of the two entrances on a side. When a nice warm day comes on during mid-winter, the inmates will come out in a general cleansing flight. The balmy air and sunshine keep them flying. Some entrances will be having more bees in front than others. As the day cools off, the bees are quite inclined to join the entrances of the strongest flyers, with the result that one colony becomes too weak and the other too strong. In the colder climates there is less trouble from drifting, especially if winter starts in snug and cold, and stays cold all winter till spring. Mr. Holtermann, for example, has no trouble from drifting, while we here in Ohio, using the same kind of winter cases, every now and then will find one colony weak and one strong, for no other reason than that the bees on a good fly day had drifted from their own to another hive.

Drifting when bees are put out of the cellar can be minimized by setting the bees out at night when there is a prospect of a nice day following. The barometer or the daily paper will usually tell what one may expect for the following 24 hours. If bees are put out the night before, with the prospect of a good day, they will get themselves settled down during the night, and the next morning gradually come out one by one, as the weather warms up. If the day is still, there will be very little drifting. If, on the other hand, the bees are set out on the first warm day, the general disturbance incident to moving will stir up every colony set out. The result will be that the air will be full of bees. Experience shows that the strongest colonies will draw from the weaker on occasions like this, as the bees are inclined to join the crowd where there is the most flying.

Sometimes the drifting nuisance can be controlled, and at others it cannot: but when it takes place the apiarist should equalize the colonies before some of them die of spring dwindling and others of starvation because there are too many bees for the stores.

The Spacing of Brood-frames and its Relation to Wintering and Swarm Control

In our last issue, page 1129, reference is made to a statement put forth by Allen Latham, supported by C. P. Dadant, to the effect that $1\frac{1}{2}$ -inch spacing from center to center in connection with other factors for

control tends to reduce swarming. While $1\frac{3}{8}$ -inch has been the standard in this country for 30 years, it has been generally believed that $1\frac{1}{2}$ or $1\frac{3}{4}$ is better for wintering. Some beekeepers, therefore, while they use $1\frac{3}{8}$ during the summer, space wider during the winter. But apparently no one has held that the $1\frac{1}{2}$ distance tended to reduce swarming until Mr. Latham called Mr. Dadant's attention to the matter. Previous to that, the latter had never given the question any serious consideration; but in view of the fact that he had so low a swarming ratio—lower than that of any one else who used large hives when running for extracted honey—he began to think there might be something in it.

Practically all modern self-spacing brood-frames of various kinds are spaced $1\frac{3}{8}$ inches from center to center. This is true of the Hoffman frame, the Hoffman metal-spaced frame, the Danzenbaker closed-end frame, and various other forms of frames using metal spacers, nails, tacks, or staples.

The question naturally arises, "How did the $1\frac{3}{8}$ -inch spacing come to be adopted thruout the United States after the $1\frac{1}{2}$ seem to have the preference of some of the best beekeepers in the United States and Europe?"

In 1890 E. R. Root, on one of the first safety bicycles that was ever built, made a trip thru the state of New York, visiting some of the large honey-producers, among them particularly being Mr. P. H. Elwood and Mr. Julius Hoffman. The former was then, and is still so far as we know, using the $1\frac{1}{2}$ -inch spacing with his Quinby closed-end standing frames. Mr. Julius Hoffman, who adopted the frame now bearing his name, had settled on $1\frac{3}{8}$ -inch spacing.

So also had Mr. Langstroth. Mr. Root, after seeing some of the large producers in New York were making a success of self-spacing frames, concluded that the beekeepers of the West who were using unspaced Langstroth frames might perhaps adopt self-spacers to advantage.

The result of the trip thru New York led to a discussion of the merits and demerits of the self-spacing frames. In advocating self-spacers Mr. Root had the support of the Eastern producers and the opposition of the Western beekeepers. The matter was thrashed out pro and con for some years.

An examination of log gums and box hives was not altogether conclusive. The men who favored and advocated the narrower spacing seemed to find in box hives $1\frac{3}{8}$ spacing as the average of brood combs.

The other fellow, who favored the $1\frac{1}{2}$ -inch distance, would find that the wider spacing was the correct average. As a matter of fact, bees, when left to build their own combs, space them all the way from $1\frac{1}{4}$ inches to $1\frac{3}{8}$ from center to center. The distance is less in the center of the brood-nest and wider on the outside. When they build store combs they space them anywhere from $1\frac{3}{4}$ to 2 inches from center to center.

Dzierzon gave $1\frac{1}{2}$ inches as the right distance until Weyprecht, after a series of 49 measurements on natural-built brood-combs, found that the average distance was $1\frac{3}{8}$. These measurements were made on comb in straw skeps. Baron von Berlepsch, by 40 other measurements, verified this result.

In Great Britain, where self-spacing frames were in use to a considerable extent, $1\frac{1}{4}$ to $1\frac{3}{8}$ were the measurements adopted. Those who favored the $1\frac{1}{4}$ measurement claimed that it practically excluded the rearing of drones, because it was practically impossible for full-sized drone brood to mature on this narrow spacing, for the simple reason that the bees would not have room to cap them over. It was learned, also, that quite a large number who used the $1\frac{1}{2}$ -inch spacing had gone to $1\frac{3}{8}$ at an enormous expense. The main reason for this was to discourage the rearing of drone brood and to prevent the storage of honey just over the brood in the brood-combs.

Worker-brood comb, on an average, is $\frac{7}{8}$ -inch thick, and capped brood one inch thick. On $1\frac{3}{8}$ -inch spacing this allows $\frac{1}{2}$ inch between the uncapped comb, and $\frac{3}{8}$ inch between capped worker brood. When drone brood is capped, there is scarcely room on $1\frac{3}{8}$ spacing for the bees to work properly, much less to hover over and keep the brood warm. This matter was discussed back and forth for several years, with the result that the great majority favored $1\frac{3}{8}$ -inch spacing as against $1\frac{1}{2}$.

All Hoffman and other modern self-spacing frames are spaced $1\frac{3}{8}$ from center to center. If it should finally develop that the $1\frac{1}{2}$ -inch spacing in connection with other factors for control exerts an influence on swarming in spite of the rearing of drones, it would entail an enormous expense, not only on the part of supply-dealers but beekeepers as well to change from $1\frac{3}{8}$ to $1\frac{1}{2}$. Suppose that it should be definitely decided that $1\frac{1}{2}$ is better, and that the supply-manufacturers should modify their machinery so as to make the self-spacing frames $1\frac{1}{2}$ inches from center to center. The $1\frac{3}{8}$ -inch frames and $1\frac{1}{2}$ -inch would become interminably mixed, and the beekeeper would be compelled to discard his

old frames. This he would hardly be willing to do, even tho the wider spacing were a proven factor in discouraging swarming.

There is one more reason in favor of $1\frac{3}{8}$ for Hoffman frames. The propolis accumulation will in time increase the width of the end-bars until they approach $1\frac{1}{2}$ inches in width.

In favor of the $1\frac{1}{2}$ -inch spacing as against the $1\frac{3}{8}$, there is the testimony of the Dadants. Mr. Allen Latham has built a let-alone hive that works for nothing and boards itself, allowing its owner to take off the surplus at intervals.

It will be remembered that Mr. L. A. Aspinwall, of Jackson, Mich., invented what is known as the Aspinwall non-swarming hive. The basic feature of this was the separation of the brood-combs so that the actual spacing between the worker brood, instead of being $\frac{3}{8}$ inch would be one inch. Mr. Aspinwall proved that when the combs are spaced wider apart, allowing more clustering room in the brood-nest, the bees did not swarm. To prevent the bees from filling these wide spaces between the combs with extra comb, he put in what he called slatted dividers, which were really dummies made up of a series of vertical slats spaced $\frac{3}{8}$ inch apart, and $\frac{3}{8}$ inch thick. It was found that the bees would occupy the spaces between the slats, and instead of clustering out in front of the hives they would be in the hives. Apparently, then, the ordinary spacing between the brood at a certain season of the year is too close to allow a proper ventilation and to keep down the temperature of the brood. Accordingly the bees when the hive is overcrowded are forced out in front of the entrance and finally swarm.

While the $1\frac{1}{2}$ -inch spacing is relatively only $\frac{1}{8}$ inch wider than $1\frac{3}{8}$, yet it is apparently approaching the Aspinwall idea.

Having said this much in favor of the wider spacing it remains to be proven whether there is an actual reduction in swarming when $1\frac{1}{2}$ -inch spacing is used instead of $1\frac{3}{8}$. If the reduction were proportioned to the reduction in actual measurements, the difference would be negligible, and would hardly compensate for the enormous expense of any changing over.

We have gone into the history of the various spacing distances for the purpose of drawing out discussion. Those who have adopted in their apiaries $1\frac{3}{8}$ will try to prove that that is the right distance. Those like the Dadants who have always had $1\frac{1}{2}$ spacing will feel happy and commiserate the other fellow who has $1\frac{3}{8}$ and can't change.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.



"JONATHAN was probably the first Hebrew who tasted comb honey," p. 1081. I wonder, now, I wonder.

HOFFMAN frames are spaced $1\frac{3}{8}$ inches—when they're new. The bees, wise little creatures that they are, think that is too close spacing, and so they plug in bee-glue, seeming to aim to get in $\frac{1}{8}$ inch of it, so as to make the spacing $1\frac{1}{2}$ inches.

J. F. KIGHT, p. 1084, you think a very prolific queen doesn't deliver the goods because it takes so much to feed the brood, and that it would be a paying thing to use her as a helper to weaker colonies. If that were the case, an equally paying thing, and easier, would be to cage the queen part of the time. I don't believe either pays. I don't think the workers of an extra prolific queen are necessarily poor storers; but in any case I think it's a safe thing to rate a queen, not by the number of eggs she lays, but by the number of pounds her bees store.

You say, Mr. Editor, p. 966, that you find out whether another super is needed in three ways: "Watching the flights of the bees going into the entrances; tilting up the supers at the back and looking under; and by hefting or lifting the back end of the whole hive." But you don't say how. I should especially like to know *how* you tell about the need of a super by watching the flights of the bees. [We can't tell without the help of the two other means. Turn to last edition of A B C and X Y Z, under "Frames, to Manipulate," p. 286, and you will see *how*.—Ed.]

THE DEMAREE plan for preventing swarming is thus modified by W. J. Sheppard, *British Bee Journal*, 319:

The queen is found and transferred with one frame of brood to the lower body, which is then filled up with empty combs, and a queen-excluder placed above. Next will come a second body, containing empty combs, to receive the incoming honey, shallow frames being preferable. Above the latter second story either wire cloth or a second queen-excluder is placed, and the remainder of the brood is then put in a third story. Between the second and third stories, that is, above the wire cloth or second queen-excluder, a small entrance is provided, thru which the old bees will return to the main entrance below and the drones can escape. All queen-cells are destroyed. Should there be none at the time, the bees will immediately build them in the third story, where they must be

searched for and cut out up to about the tenth day, when the brood will be too old for any more to be built. The wire cloth, or second queen-excluder, can then be removed, leaving the upper entrance intact until the end of the season, if preferred.

"WIND, just wind," is the answer from somewhere near Providence. This "re" apiary locations, pp. 866 and 966. Some time before you and I were boys the glaciers traveled down across here from northeast to southwest, cutting the surface into grooves and ridges. Our prevailing winds are southwest—good nice strong zephyrs. As bees "follow their nose" it just naturally happened that those on the crest and west of the ridges referred to worked on one set of pastures while those on the eastern slopes worked another set, and there was virtually no trespassing on each other's territory. Surely bees go many miles from home. D. A. Jones, when he had his Cyprians on an island in the Georgian Bay, found them working on the mainland seven miles away. Thus writes Arthur C. Miller, and no doubt he's right. The bees' noses are to be reckoned with; and so it may happen that they go seven miles if the wind from that direction entices them, while they may fail to find pasture half a mile away if there is no wind from there.

FIFTY years ago 45 degrees for a beecellar was the orthodox thing. I don't know why, but Dr. Phillips suggests because that was about what could be easily attained. Somewhat strangely, within the past few years 40 degrees has been advocated. Now the tendency is upward, probably due largely to the investigations of Dr. Phillips. About 45 or 50 is mentioned approvingly, p. 1011. I think that can be safely shoved up still more, partly because of my own experience and partly because of what Dr. Phillips says. In his "Beekeeping," page 347, he gives between 57 and 69 as the best temperature for the cluster; and as to the air in the cellar, he says, "The majority of beekeepers consider 40 to 50 as the best cellar temperature, but it is clear that the temperature can usually be raised to at least 50 F. with beneficial results." That "at least" makes 50 the minimum, and it is not unlikely that we may some day settle down upon 50 to 55 as the best cellar temperature. [The cellar temperatures are going up. The new A B C and X Y Z favors 50 to 55.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.



It is good news to know that asters yield better after a frost—page 1009, Nov. 1.

The editor discusses the importance of windbreaks on page 1011, Nov. 1. I for one am glad more and more emphasis is being placed on this point in outdoor wintering of bees.

Page 923, Oct. 1, Mrs. W. T. Lively gives some theories on the color variation in honey. While in Florida a few years ago I was told that the sugar-cane syrup grown on high, dry, sandy soil was of much lighter color than that grown on the rich hammock lands.

Except the law had said, "Thou shalt not covet," I feel sure I should covet Mrs. Allen's many acres of crimson clover, page 906, Oct. 1. It must be a comfort to have the gap between fruit-bloom and white clover filled in. The past season we had nearly four weeks after fruit-bloom when bees could gather little.

That announcement in Nov. 1st GLEANINGS that GLEANINGS is to become a monthly after this year has caused a feeling of pain to many who have been for so many years cheered by its bi-monthly visits. We expect, somehow, we don't now know just how, to be "disappointed," and to enjoy the new way as well as the old.

That "sousing method," as Mr. C. D. Cheney calls it, page 986, Oct. 15, of introducing queens with dilute honey certainly seems an improvement over the use of thick honey. The danger, by use of thick honey, of injuring the queen seems to me very great in our cool climate. I am glad, too, to know of his success by this method.

George Shiber, page 853, Sept. 15, estimates there is a saving of one-third of the stores by wintering in the cellar. I have found, by actually weighing, it is even more than a third. About 7 lbs. more is required out of doors than in a cellar, but these figures might vary with the amount of protection given out of doors, the severity of the winter, or the excellence of the cellar.

One of the interesting things about GLEANINGS is that we get interesting pie-

tures of different parts of the beekeeping world. That on the cover, Nov. 1, is especially interesting. The editor tells us that already they have 4,000,000 acres under cultivation in Imperial Valley and very soon will have 2,000,000 more—almost as much as the whole state of Vermont, and vastly more productive.

I have just returned from the New England fruit show at Montpelier, Vt. The magnificent display of fruit, especially apples, will go with me as long as I live. Apples, apples, apples! of every kind, color, and flavor. Surely no other fruit can compare with it. It is the king of fruits. If bees had no other claim to our attention than the part they play in the production of this magnificent fruit they would still be worthy of our thought and care.

The editor puts up a good argument, page 776, Sept. 1, in favor of the use of comb foundation in sections, and I believe he is right. Still, I cannot help feeling that, while a comb built on light foundation may have less wax than one built without foundation, especially if it is drone, as it is apt to be, there is a tenderness or flakiness about the average comb without foundation that the other lacks. But for all that I shall continue to fill my sections with foundation, as the advantages overbalance the objections.

Reference on page 840, Sept. 15, to sweetened spraying solution for destroying insects is of interest to beekeepers. I doubt very much if the formula as given, two gallons of molasses to 50 gallons of water, would attract bees when honey is coming in at all, but it might do so. Would it not be better to substitute glucose or corn syrup, as it is called now, for the molasses? My apples have been seriously injured for a number of years by the apple-maggot or railroad worm, as it is often called. The eggs are laid by a fly that appears usually early in July in this section. Like other flies they are fond of sweets, and a little spraying on one side of the tree seems to answer the purpose. Last July I sprayed with a solution of arsenate of lead and corn syrup, with the result that this fall my fruit is the finest I have had for many years, showing that the corn syrup answers every purpose, and with no danger to the bees.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.



Loquots and bluegum (eucalyptus) are blooming (November 27.)

No rain since the middle of October. The unusually heavy growth of filaree is fast becoming a thing of the past, as there is no surface moisture to keep it alive.

Did you see those pictures of the Kansas exhibits in the November 15th issue? They make me feel proud of my home state in which I learned the most valuable lessons of my life in beekeeping.

I have been watching my bees work on the stem scars of the umbrella-trees, where the leaves have dropped off. A secretion forms where the leaves are broken away, and the bees are taking it up. Not all of the trees seem to have this secretion; but wherever it is, the bees are there.

I have just killed a queen that has completely puzzled me. I cannot see why she should not have mated, with plenty of drones in the air at the proper time—perfect wings, ideal weather, etc. I supplied her with brood for two months as an experiment, but to no avail. She laid nothing but drone eggs.

Mr. Editor, I stand corrected on that diagnosing matter, page 1052, Nov. 15. But still it seems to me like recommending some new way of curing disease that would be safe for the experienced but not for the amateur. It would be better not to advocate it so strongly as a protection to amateurs, even tho they are warned.

During the past month I have been fortunate in meeting J. E. Wing, the well-known queen-breeder of San Jose. Mr. Wing is touring the southern part of the state with his wife and child, visiting beekeepers in various sections of the South, and getting acquainted. He has a good reputation as a queen-breeder. Last year he put out over four thousand queens besides many pound packages of bees.

There is a motive for every action of the bee. To be able to solve the meaning of their actions is to be able to add a contribution to science. If queen-cells are torn

down, virgins killed, or if introduction fails, there is a strong chance that one is trying to force nature in an unnatural channel. When bees are busy they will accept more help than when they have plenty of time to look after details. Then, too, the old bees are largely engaged in the field when there is a honey-flow; but when it stops, look out for trouble, for it is impossible to "pull anything over them" as easily as over the younger generation.

A number of my hives are three supers high. Last September I placed a full super of honey on quite a number that were empty, or comparatively so, in the middle super. I recently made a visit to my apiary on a cold day, having the task of giving honey to some colonies that were short. I was greatly surprised to find that the bees were clustered in two divisions in nearly all of these hives. In the brood-chamber there was a good supply. The next super where the combs were empty there were no bees. In the upper super, where the honey was, there were many bees, doubtless their mission being to protect the honey above. Where there were no excluders on, all three sections were occupied, the main portion being in the upper or middle sections.

Dr. Bonney asks, page 1086, Nov. 1: "I wonder if it will surprise Mr. Chadwick when I tell him that my wife and I have charge of the postoffice in this little town, and that we know certain packages must have been willfully broken or else handled in a very violent manner." That packages containing liquid are often broken in the mails and arrive at their destination empty is no sign that they have been tampered with. When such a package is broken the muss must be cleaned up and the rest of the mail protected, and it would not be the policy of wisdom to put a broken package back in the mails with enough left in the container to destroy other mail matter still further. I cannot agree with you, doctor, that mail matter is willfully destroyed or appropriated, as you suggest, by postal employees. I have helped to clean up some of these "musses" and know what it means. If you have reason to believe that the mails were being tampered with, it was your plain duty to report the matter thru the proper channel. I consider your criticism on the postal employees as being based on insufficient knowledge.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas



Even Uncle Sam has learned the value of honey as a food, and now furnishes it to his soldier boys as a part of their "rations." At Camp Wilson alone, located near Fort Sam Houston, San Antonio, Texas, tons of extracted honey have been used up by the guardsmen encamped there. Ten cents a pound was paid for it in 60-pound cans, which is indeed a good price if we but consider that the finest grades of extracted honey sold at 5 and 6 cents a pound earlier in the year.

Dr. Miller, p. 1061, Nov. 15, proclaims surprise at the "physical possibility" of bees building drone-cells on one side of a comb and worker on the other. I proclaim surprise at the possibility of such a thing never having occurred during Dr. Miller's long years of beekeeping experience and close observation as intimated by him in answer to Allen Latham. "Locality" again must have something to do even with this matter. In my locality I have frequently seen such stunts in naturally built combs, in combs built on foundation, and in cases where the worker-cells of part of one side of a drawn-out comb were torn down and replaced by drone-cells.

GLEANINGS to be a monthly magazine hereafter! Good! I have called GLEANINGS a magazine for several years, because it has been more like one than like a journal; yet it was not quite complete nor large enough to belong in the class of other magazines of the country. I feel, too, that the monthly issue will be welcomed. Two weeks fly by very rapidly with the average busy beekeeper, and it gives him hardly time to read and properly digest the contents of one issue before another appears. Even if the larger monthly contains more reading-matter it can be more easily "handled" because it is all bound in one volume, and that with comparatively less advertising matter to "wade thru" than in the case of the semi-monthly.

HOW BRENNER GETS CELLS.

In relating some of Mr. Hy Brenner's remarkable success in queen-mating, in the last issue of GLEANINGS, I promised to de-

scribe the method employed by him for getting queen-cells.

After providing a cell-building colony, strong and queenless, in the usual manner, he inserts a comparatively new, empty, and perfectly clean worker comb in the center of the brood-nest of his breeding colony for the breeding queen to fill with eggs.

Next he provides an empty super with cleats just below the super rabbets, so that these will support a frame laid flat on them. The open spaces on either side of the frame and super sides are filled up with two pieces of board laid on the same cleats that hold the frame in place. This super is then placed on top of the strong cell-building colony. Mr. Brenner now takes the comb with eggs from his breeding colony and prepares it for the cell-builders. With a sharp implement he destroys the entire length of the first row of worker-cells in the comb of eggs. Then he skips one row and destroys the next, and so on until each alternate row of cells has been demolished. Reversing the comb from side to end, he proceeds in the same manner across the comb. When complete, there will be a checker-board of single worker-cells, each containing a worker egg.

This comb is now laid carefully in place on the cleats of the prepared super on the cell-building colony. Altho several inches away from the top-bars of the brood-frames, it is directly over the broodless brood-nest proper, and the nurse bees soon take possession of the prepared comb.

According to Mr. Brenner's statement, as many as 95 cells have been built on a single one of these combs. Nothing is done on the opposite side of the prepared comb, and, when placed in position, the whole top of the super is covered up warm with old sacking or the like. The bees do not have access to the upper surface of the comb, therefore, and the eggs in these cells simply dry up.

The progress of cell-building can be easily watched by carefully lifting the comb and holding it perfectly level, being careful not to jolt the inmates of the queen-cells, thus crippling them. When these cells are fully "ripe," almost ready to hatch, they are cut out of the comb by cutting right thru it. Mr. Brenner gives them to the newly formed nuclei with cell-protectors. If the cells are to be given to stronger colonies he prefers to place them in Rauchfuss cell-protectors.

E. G. Baldwin

FLORIDA SUNSHINE

Deland, Fla.



PIONEER PATENTS.

A friend and neighbor beeman of mine, at Glenwood, Fla., has shown me an ancient certificate that will elicit a smile from the modern apiarist. It reads as follows:

"To all whom it may concern: This certificate entitles R. B. Sproul, of Lee Co., Illinois, to make and use W. A. Flanders' semi-circle and Book Bee-hives, patented July 14, 1863, and April 5, 1865, upon one farm only.
Elijah Benner & Co."

Can you beat it? How many of the fraternity know anything of W. A. Flanders? Hands up—but remember you will be giving your age away.

THE HONEY METHOD AGAIN.

Many times the omission of some apparently simple factor of a manipulation will spell failure. Practically all reports from beemen who have tried the honey method of introducing queens have been favorable. But one report from Arkansas is so distinctly dismal that we cannot refrain from quoting it in full here, as a warning to others "how not to do!" It is as follows:

Mr. E. G. Baldwin:—I have tried your method of introducing queens as stated in *Gleanings*, July 1, page 525, to my sorrow. It did not work for me. I ordered a queen by mail, and thought I would introduce by the honey method (as I had lost the last queen I tried to introduce by the cage method). It seemed easy. I therefore removed the old queen and took about half a cup of honey and soured the new queen in it, and poured it into the hive. It wasn't fifteen minutes before the bees began to get in an uproar. Whether the queen left and came back I don't know; but anyway this morning the bees were all excited. After awhile I noticed them dragging her out dead.
Wm. R. Lindsey.

Buckner, Ark., Aug. 30.

In the first report we gave in these columns (June 1, p. 525) we omitted to emphasize the fact that the entrance should be contracted during the operation, and remain so for a day after it. But in the recapitulation, p. 845, we did emphasize this essential feature as follows: "Then close the hive-top, and see that the entrance is narrowed to a point where robbers can be kept out according to the strength of the colony."

Without doubt our correspondent from Arkansas had a full-sized case of robbing on hand in about ten minutes after the op-

eration. Of course the queen was killed. Odd if even the colony escaped. We are sorry we omitted the entrance-contraction clause in the former article. It is an essential to success with the method. An experienced beeman might have thought of it anyhow, but not so an amateur. We sincerely hope that our correspondent will give the method another thoro trial, and report. We feel sure the method will work all right if performed all right.

ANOTHER HONEY-PLANT REPORTED.

Recently a specimen plant was mailed as from southwest Florida to which the local name "minkweed" had been given. We have never before heard that particular local name. The sender declared it is a splendid nectar-yielder, and that there were hundreds of acres of it near him. He added that he had been told it was the boneset of the North (*Eupatorium perfoliatum*). The plant is not the boneset at all. It is the vanilla plant, or deertongue (*Triplaris odoratissima*), one of the numerous and widely differing members of the great thistle family. The stem is smooth, the lower leaves are spatulate, the upper are oval or oblong, and smaller. The heads have about 7 or 8 flowers that form a convex cluster, each flower on its own stalk, and rising from its own stem. The blossoms are purplish, verging on white. It grows in the flatwoods pretty generally over the state. The thistle family is pretty widely represented in eastern-central Florida, there being no fewer than 147 genera and species in Volusia Co. alone. Of these the following are among the honey-bearing plants: Thistle, three species: ironweed, *Liatris* (or blazing-star); *Chrysopsis* (golden aster). We have six species of the golden aster. Of goldenrod we have 7 species in the county. Of asters proper we have 7 species; sunflower, five species; and cosmos, cultivated. Just now the bees are working vigorously on the asters, the wild-sunflowers, and the Spanish vines (*Antigonon*). Oddly enough the bees never seem to work on the goldenrod hereabout, tho we have made special examination many times. Goldenrod seems to vary thus in different parts of the country. Dr. Phillips, we recall, told us a year ago that the bees never touch the goldenrod in the region of his home near Washington, D. C. We wish other beemen all over Florida would report whether the bees in their localities work on this plant.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York



BEEHIVES

THE accumulation of the past three years has made me willing to write upon the well-worn topic of the beehive, because there is, perhaps, no point relating to beekeeping about which I am asked so many questions as this. Allow me to say at the start that it is well to understand that the bees themselves are not much concerned about the shape or dimensions of their home. They will store as much honey, other things being equal, in a shoe-box or part of a barrel as in a hive patented by some elated novice. Hence the form of the hive is only a question of convenience to the apiarist. The beekeeper may make its shape to secure the object he has in view. But from the stack of letters I have on this subject it would seem that beekeepers have many objects, as hives are wanted for producing comb honey; for extracted honey; for wintering bees; for preventing swarming; for producing bees; for rearing queens, etc. Fortunately a different kind of hive is not required for each.

The hive best adapted to the production of honey is that which the majority are seeking after; and if a hive is to be selected for this one object an eye may be had also to other objects that are subsidiary. To illustrate: While queen-rearing is a legitimate department of bee-keeping, yet the characteristics of the hive best adapted to that branch are of special interest to only a few, and thus the hive in use for the production of honey, both comb and extracted, will generally be found sufficiently serviceable for this branch of our pursuit. The successful production of honey is the one overshadowing object of apiculture; and therefore, in my view, there are some positive qualities to be sought for in any hive at all well calculated for an apiary to be conducted for the highest net profit.

Where an apiarist has a love for exploring the inside of the brood-chamber during the honey season, the contraction of the brood-chamber at the height of the flow will bring almost astounding results in white honey, which, as a rule, brings almost double price over that from buckwheat or fall flowers; yet, considering that the rank and file are more prone to leave the bees alone, only as manipulation tends toward better success, I consider the ten-frame Langstroth hive, when used in connection with the Italian race of bees, to be the better

for the average beekeeper. This hive gives sufficient room for the production of brood so that the maximum as to the number of bees can be accomplished in good time for the harvest from clover and basswood, while it allows of sufficient stores to be carried past the winter consumption, so the bees feel no need of retrenching by way of scrimping the brood during the latter part of April or in May. Plenty of stores in sight at all times is with the bees like a good account in the bank with the average thrifty family who have something to invest where a profit can be made as well as the wherewith to tide over a period of scarcity. And a colony of good Italian bees seem to know just when and where a good investment of stores looking toward a return in numbers of bees at just the right time in the season can be made, and so we find them using on their stores quite lavishly the last half of May and the first two-thirds of June. They will retrench in brood as the flow of nectar becomes more bountiful after June 20 till the close of the basswood bloom in July. Thus with the Italian bees the ten-frame hive will accomplish all that could be accomplished with the small hive and contraction advocated so vigorously during the latter part of the nineteenth century by the beekeepers living north of latitude 40, and without all of the manipulation and feeding which this contraction or small hives required.

The ten-frame hive need not be very expensive. Thirty to forty cents should purchase lumber enough of sufficiently good quality for body, cover, and bottom. Lumber with sound knots will answer very well. The apiarist should not be led by one or two good crops into failure in point of economy. Then this ten-frame hive is not cumbersome. Its bulk and weight will allow of its being handled easily by one man when it contains a colony of bees with stores enough for winter, as a rule. If the hives are to be seldom moved, then a large double-walled or chaff-packed hive may prove an exception.

In the production of extracted honey I consider this ten-frame hive as good as any, as story after story can be placed or tiered to the utmost requirements of either the bees, queen, or apiarist. If it is undesirable that the queen have access to all of the hives, a queen-excluder may be placed between any two stories, and thus the extracting-frames kept free of brood.

GENERAL CORRESPONDENCE

ONE OF THE SKILLED CANADIAN BEEKEEPERS. E. T. BAINARD, OF LAMBETH, ONTARIO

BY R. F. HOLTERMANN

Traveling thru the county of Middlesex, one of the best agricultural counties in Ontario, I reached the city of London. From there, going by the electric line, I reached the home of Mr. and Mrs. E. T. Bainard. This was not my first trip to the Bainards; but since my last visit quite a number of changes have taken place.

Mr. Bainard has been keeping bees for twenty-five years. When a boy on the farm he became interested in bees thru reading articles in the *Farmers' Advocate*. That he had a natural inclination in that direction was pretty well shown in the way in which he studied the bumblebee in its habits, keeping their nests under his observation. At first, beekeeping was combined with farming; but as success warranted, and circumstances permitted, the farming part was laid aside, and for the last seven or eight years beekeeping has been his sole occupation. He is now running three apiaries, each containing in the neighborhood of one hundred colonies. He confines himself exclusively to the Heddon hive. Two apiaries contain eight-frame hives, and the last ten frames, which is equal to a 13-frame Langstroth hive. Mr. Bainard produces extracted honey only. From a few words dropped, I believe that there is a little controversy on this question between Mr. and Mrs. Bainard, the latter wanting to devote one colony to the production of comb honey for occasional family use, and, as I put it, to amaze her friends with the beautiful comb honey her husband can produce.

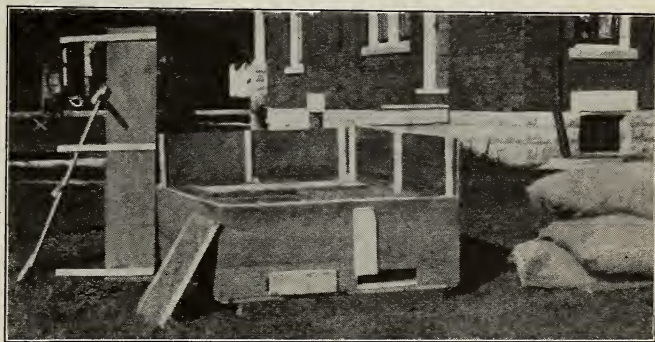
The source of honey is almost exclusively clover; but under favorable conditions a little basswood is obtained. This shows that the honey-flow is not prolonged.

Four colonies in a case is the method of wintering. The outside entrance thru the case to the hive is about 2 inches high by $\frac{3}{8}$ wide; and by means of a movable piece

which swings on a screw the entrance can be enlarged to 2 x 10 inches. The hive entrance is $\frac{3}{8}$ in. deep by the width of the hive.

That Mr. Bainard has learned the value of a sheltered place I can best explain by quoting him. He said, "At one time I tried to get a cover to a hive that would not blow off; but now I seek to have the apiary where the wind will not blow the covers off the hives." He aims to have the outer cases 8 or 10 in. from the ground, considering that they are dryer in the spring of the year, and there is less danger from the ice on the ground chilling the flying bees.

The first visit to the bees—to satisfy curiosity—takes place in early March; but on this trip, if any attention is needed it is



Bainard's winter case with the upper pieces partly removed. These are separate from the lower main part.

given. Rarely an outer case may need to have the snow removed. If there are dead colonies the entrances to such hives are closed. Whenever weak colonies are found the entrance is contracted with paper. This the bees can remove as fast as they require the entrance room.

The next visit is made in fruit-bloom when more room is given by adding another section of the Heddon hive to the two sections upon which the bees are almost invariably wintered. The need of the bees is judged from outside conditions. In 1913 one colony had a super on before fruit-bloom; but this is rarely the case. The bees are unpacked some time during fruit-bloom; but if the bees do not do much during that

period they are left until later; but they are always unpacked before the clover flow.

The work of packing and unpacking is lightened very much by having the permanent nailed sides of the packing-case no wider than the depth of the hive. After the hive is set in the case, a board the depth of the packing is set on top of each side, kept in position by three "stakes" which extend down just inside of the case wall. The joint between the two parts is beveled to shed water. There is five inches of packing at the sides and ends of the hives, and about 8 inches on top. The extension-boards are not nailed to the case; and during the summer they can be laid inside of the case to which they belong. I must confess that I consider this plan decidedly superior to the full-depth case that I use.

Both summer and winter Mr. Bainard uses a honey-board $\frac{3}{8}$ inch thick. In the preparation for winter he breaks the propolis joint after the bees are packed. The only cover he has in summer over the honey-board is an inverted "pan" made of galvanized iron for shedding water. This pan is put over the hive in the case, with about 4 inches of packing below and 4 above. A gap of several inches is left at the backs of the hives. Mr. Bainard claims without any hesitation that in this way no moisture collects under the metal covers.

WEIGHING AND FEEDING.

The hives are weighed as they are packed; and when necessary the bees are fed after weighing, the time for this being as near Oct. 1 as convenient.

In melting sugar Mr. Bainard heats the syrup, puts in the sugar, and uses a stick with a suction contrivance at the end which moves the sugar on the bottom of the tank and soon dissolves it. This stick is what is called in Canada a "Manitoba washer." In my estimation the plan of feeding the bees after packing is correct.

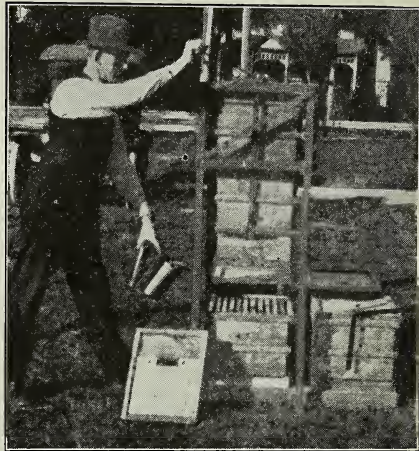
LEVER FOR LOOSENING SUPERS.

Mr. Bainard has shown considerable mechanical ingenuity in designing a clamp or lever for catching one side of the hive or super below and the other side of the super above. When the lever is moved, the super above and the hive or super below are wrenched in opposite directions and loosened. He uses this device when examining the colony or when putting on escape-boards.

HIVE-LIFTER.

If I am not mistaken I am the father of a hive-lifter myself—one of the first published; but—well, it took too long to use it, even if it lightened the work. I could ad-

just myself as a lifter to the hive more rapidly than I could locate the contrivance; and physical energy in a rush did not count for much. But Mr. Bainard has not only designed a lifter but he has used it. It is simple, saves a lot of heavy lifting, and perhaps he is not in quite as big a hurry as I am. It is made as light as efficiency will allow, weighing only 23 lbs., and it will support 200 lbs. The supers can be raised high



Bainard's hive-lifter in use raising supers.

enough to permit an examination of the brood-chamber underneath. The lifting-device has four legs, and has in connection therewith and at the top a part like an old windlass on a well. The shaft is made of five-inch gas-pipe. The super is clamped or clasped at the ends, and works best if there is a cleat; but it can be made to fit into the hand-holds generally found.

IMBEDDING-WIRES.

The wires are imbedded in the foundation by means of electricity.

POINTS IN MANAGEMENT.

Mr. Bainard has found that a small entrance to a hive, giving insufficient ventilation to the colony, irritates the bees. This first came prominently to his attention in an outyard when for experiment the $\frac{3}{8} \times 3$ -inch bridges, in front of the winter-packed hives, were not removed when unpacking. The object in leaving so small an entrance was to see if the bees would go more readily into the supers. The weather turned very hot about that time, and the bees became cross, and remained so for quite a time afterward. After-experience confirmed this. This quite agrees with my own experience when moving bees during hot weather.

EXTRACTING CONVENIENCES.

A tank some 6 feet deep and 3 wide is used as a storage-tank. Two inches below the top there is an overflow pipe which returns the honey to the extractor when the tank is full. The tank holds about 3000 lbs.

The honey which drains from the cap-pings is carried by gravity into the extractor, entering the can just below the level of the baskets to prevent a back flow of honey from the extractor. The uncapper stands close to the extractor. A central extracting station is used, to which all the honey is hauled and extracted.

To be able to strain honey rapidly, a very unique plan has been adopted; and that is to run a quarter-inch steam pipe in the center of the eight-foot pipe thru which the honey is pumped from the extractor to the tank. Mr. Bainard said that this pipe should not be too hot, and that the flow of steam, therefore, must be regulated. The upright pipe should really contain only condensed steam. He thinks that a better way would be to have the heat outside of the honey-pipe.

A HONEY-STRAINER.

Another beekeeper, John W. Campbell, who lives next door to Mr. Bainard, but who has his bees nine miles from there, gave me some interesting information. Mr. Campbell uses a new strainer material which Mr. Bainard has also adopted, as it is far superior to cotton cheese-cloth. Linen cheese-cloth is used. It is stronger than cotton, and the threads are less fuzzy, so that the material acts more like fine wire cloth. This strainer is laid on a 5/16-in.-mesh wire cloth which is fastened to a hoop that catches on the top of the storage-can. The cloth is removed frequently—at noon and before starting extracting in the morning—and put into a pail of cold water. After the honey dissolves it is rinsed and shaken out. Perhaps some of the readers of GLEANINGS do not realize why a honey-strainer should be washed in cold water. It is to prevent the

wax from melting and sticking to the threads.

A LEVER FOR PUTTING ON COVERS.

Mr. Campbell told me of a way to put friction-top ("slip top" or "penny lever") covers on honey-tins, which is away ahead of my own way, and I have put on many thousands during the last ten years. He simply hinges a lever to something solid with a round piece of wood on the under side of the lever that will fit inside of the cover to be put on. He regulates the height for each tin by using varying thicknesses of blocks under the tin. The covers are pressed into place by pressure of the lever. Very rapid work can be done in this way.

Mr. Bainard told me that the late Wm. Elliott, of Adelaide village, near Lambeth, had a device used in connection with putting wet combs back on the hives after extracting. It consisted of a solid bee-escape board with an additional opening covered by a slide, thus controlling the communication between the brood-chamber and the supers containing the wet combs above. The slide could be manipulated from outside of the hive. The bee-escape in the board also had a shield above it to prevent dead bees and wax from falling into the bee-escape, and perhaps clogging it. It seems that Mr. Elliott used these boards on top of all hives upon which wet combs were to be placed, and left the means of communication closed until night or until after all the supers had been located. This prevented the very undesirable excitement and tendency to rob which is well known to be the result of the bees having access to the wet combs.

For the edification of the inexperienced I wish to say that it is a comparatively easy matter to remove combs of honey from the hive by means of bee-escapes, and to extract the honey in a bee-tight house; but the excitement is sure to begin as soon as the wet combs are put back upon the hives. The bees appear to sound an alarm which sets every field bee on the hunt.

Brantford, Ont., Canada.

OPENING UP THE FRONT OF THE HIVE DURING HOT WEATHER

BY WALTER J. BAILEY

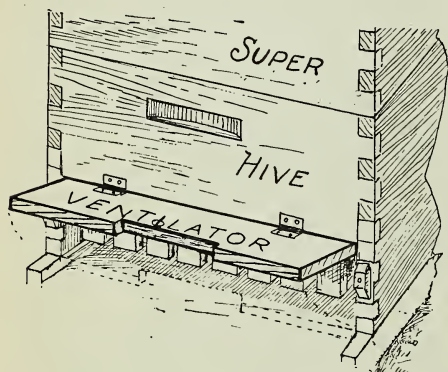
Every experienced beekeeper who keeps bees for profit and not pleasure is aware that, in order to secure the largest amount of honey, he must cut swarming short if he possibly can. When operating for extracted honey we can control the swarming much better than when running for section honey.

When I first became a beekeeper I had trouble with the swarming problem. My bees would get a nice start in the supers, and, about the time the supers were two-thirds full, the bees would swarm, and there I was with a partly filled super. Of course I gave such supers to other colonies to com-

plete; but if the bees can be kept at home, and swarming prevented, we can secure a greater amount of surplus honey.

I have a plan that I have followed for the last ten years that has proven very successful. I had only four swarms this season out of forty colonies. Some colonies will swarm, regardless of what is done to prevent it. I can prevent swarming by cutting the queen-cells; but every beekeeper knows that this is a very troublesome job.

I control swarming by giving plenty of ventilation to the bees. It is useless to give plenty of supers unless there is also plenty of air. I use the eight-frame dovetailed hive; and before I nail the hive-body together I rip a piece 5 inches wide off the



lower side of one of the end pieces, this end that has been ripped is to be the front of the hive. I then put the hive-body together, leaving the five-inch piece out. I saw the dovetails off the five-inch strip, and fasten

it back in place with two small hinges. This makes a five-inch door the width of the hive, for an entrance door. In hot weather, when my bees begin to get strong in the spring, or at the beginning of the honey-flow, I open this door and turn it back up against the hive. This gives the bees plenty of air. If there is also plenty of super room there will not be one swarm in ten colonies. With this large entrance it is no trouble for the bees to force plenty of air up into the supers where it is needed in hot weather. I have two small buttons on each side of the door to hold it in place when closed for winter.

At the close of the honey-flow in order to prevent robbing I close the door to all hives that are weak and not able to guard so large an entrance; but the doors to all strong colonies are left open until winter. These large entrances keep the bees cool and comfortable during hot weather when no honey is coming in, and when the bees are idle.

I have an Aspinwall hive that has made over 200 lbs. of honey this season. I have had this hive for five years, and the bees have never swarmed; but it is much trouble to take out the dummy frames in the fall and put them back before the honey-flow. During the honey-flow the bees build the comb in the brood-frames clear out even with the edge of the frame; and in the fall, when one takes the dummies out, there is no bee-space left between the frames when crowded up for winter.

The plan I have given, if properly carried out, will nearly do away with swarming. It is the best thing I have found.

Owingsville, Ky., Aug. 18.

THE BEE-SUPPLIES USED IN HOLLAND

BY J. H. J. HAMELBERG

Considering the population of this country, we are well provided with opportunities for buying our bee-supplies; but the supply stores furnish only the hives and fixtures used by the majority of the Holland beekeepers. Those using American hives, as I do, have either to make their own fixtures or order them from the United States, which is rather expensive.

With the exception of hives and their fixtures, honey-jars, and comb foundation, most of the articles sold by our dealers in bee-supplies are of German make, and in general they answer all purposes. I do not consider our hives and fixtures the equal to the American product, for as a rule they

are much frailer and not so well finished. This can be accounted for by the limited trade, which does not permit the use of such expensive machinery as American manufacturers use.

I can not understand why our comb foundation is so inferior, for American machines or the equivalent of American machines are used in its manufacture. The brood foundation here is so thick that only thirteen Danzenbaker frames can be filled from a kilogram (2.2 pounds), and extra-thin foundation suitable for sections is not manufactured in this country at all. Dealers claim that the bees will draw out the wax in this heavy foundation so that they

are saved the necessity of producing so much at a time. In this I do not agree; besides it is a question whether it would not be more profitable to let the bees gather honey and make their own wax for cell-building than to make them spend their time in reducing the sides of the cells of thick foundation. Furthermore, the thick midrib may not be objectionable for brood-comb, but is very bad when used in sections, or even in shallow frames when the honey is to be sold as bulk comb honey. Samples of comb foundation I have had from Germany and Austria are little better than our own product, but still they remain far behind that made in America, and the reason for this I do not understand.

I wish to give some particulars about my own appliances and methods, so far as they differ from those usually described or illustrated in GLEANINGS.

BOTTOM-BOARD.

The end-piece of my bottom-board is not nailed fast but is fastened to the sides with a brass hinge at one end and a hive-clamp at the other. I consider the movable end very convenient because I use shallow tin trays for stimulative feeding; and by throwing open this end-piece the trays may be pushed in from the back and filled readily without disturbing the bees. The robbers are also less of a nuisance than when they can smell the diluted honey at the entrance.

The greatest advantage, however, of the loose end is that it enables me to clean the floor-board in winter without disturbing the bees above. The sides of my bottom-board are about an inch high, and the distance between the floor and the bottom-bars of the brood-frame is $2\frac{1}{2}$ inches, permitting a large scraper to pass freely under them. This scraper is made of a common flat file forged to the dimensions $\frac{1}{8} \times \frac{1}{2} \times 8$ inches, and fitted with a long handle made of stout wire fastened to it in the middle with a screw thread and nut. I push the handle thru the entrance and haul the scraper thru the hive from the back so that all the dirt and dead

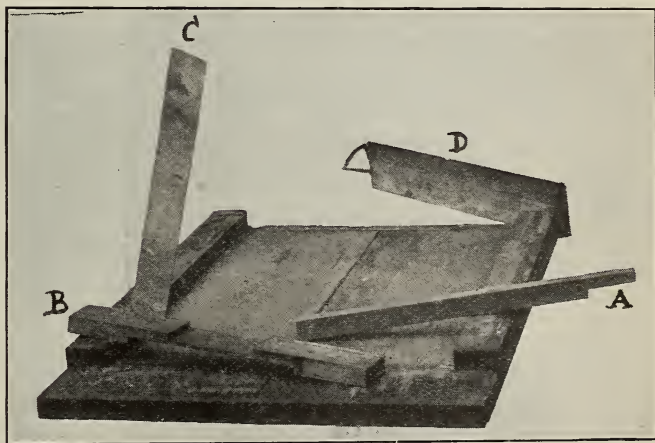
bees will be drawn out in two or three strokes.

By examining the refuse that I pull out I am enabled to know the condition of the colony. If I find it damp, more ventilation is needed at the entrance. A large number of honey crystals or wax grains in the sweepings show that the bees need water. Larvæ of wax-moths indicate the bees have been cleaning out the cells for brood-rearing. Dead bees with extended tongues indicate starvation, while the finding of a dead queen shows me that I have to overhaul the colony as soon as the weather will permit. To make this kind of examination it is necessary, of course, that the floor board be scrupulously clean when preparing the bees for winter in the fall.

I make the end-piece higher than the sides of the bottom-board so that it extends up on the back of the hive.

ENTRANCE-BLOCK.

I make my entrance cleats $1\frac{1}{2}$ inches wide, and take care that they do not fit too tight, else when swollen by the rains I would have too much difficulty in removing them. If necessary I fasten them to one of the sides with a small wedge. These wedges often are handy, as, for instance, in giving a



Hamelberg's hive-bottom. A, entrance cleat for winter. B, entrance cleat for summer. C, galvanized iron piece to close either entrance of B. D, back cleat opened.

little super ventilation or in fastening Alley traps to the entrance.

I have a vertical saw-kerf in the block on either side in which I can slip a strip of galvanized iron. When not in use this strip is simply turned up in a vertical position against the hive so that it will not get lost.

For winter I use special entrance-blocks the same dimensions as the other, but with

an opening of only $\frac{1}{4} \times 2\frac{1}{2}$ inches at one end, so that the entrance will be at the right side of the hive.

HIVE-STANDS.

My hive-stands are like those commonly used in the United States, consisting of four pieces of inch material nailed squarely together. I strengthen these frames, however, by nailing triangular blocks in the corners. I have these stands supported on legs about eight inches long so that I can put my feet underneath. This is very convenient when lifting heavy supers.

Before nailing the hive-stands together I soak all the lumber for twenty-four hours in carbolineum so that the stand will last for years before showing any signs of decay. I can not recommend this disinfectant too highly for all wooden structures that come in direct contact with the soil.

SUPER-COVERS.

My super-covers have a hole in the center to fit the mouth of a common fruit-jar. Besides feeding syrup I also feed rock candy, and the holes in the boards answer very well

for this also. In mild winters, when the bees consume a great deal of stores, I sometimes fear that they have too little to last until spring, then I feed candy cakes made after the recipe in the A B C and X Y Z of Bee Culture.

In January we often have one or two fine days when the thermometer rises above 50 degrees, when the bees have a chance for a cleansing flight. On such occasions I scrape the peat dust (the packing material in the super) to one side, thus uncovering the thin board that rests over the hole in the super-cover above mentioned. Then I can replace the thin board by a cake of candy (about 6 pounds) which I cover with a piece of burlap and scrape the peat dust back over it. This takes less time than to tell about it, and the bees are very little disturbed.

A further advantage of the holes in the boards is that they enable me to take a hasty glance at the interior of the hive at times when it is too cold to overhaul the brood-nest.

Soest, Holland.

SANITARY CONDITIONS IN THE BEEYARD

BY J. E. JORDAN

Much of the bee disease of today is spread by the unsanitary conditions tolerated by beekeepers. Many give the matter no thought whatever; some know just enough about bees to take the honey from them, and do not think that there is any more to learn. Sanitary conditions are just as important in beekeeping as elsewhere. I think the greatest thing that could happen would be to devote a certain day or week of each year to *cleaning up*, all the beekeepers to get busy on that day.

In getting things sanitary, first look into the location of the apiary. Are the grounds clean? Cleanliness is next to godliness. I have found it best to place the hives so that the sun will shine on them during the whole day. The rays of the sun are known to kill many germs. I do not advocate shade here, as some bees are inclined to be cross in a cool shady place and will not work as early and late as those in the sun. Of course if in a hot climate a little shade during part of the day is desirable.

See that the hives are well up off the ground, so that plenty of air may circulate under them. Never let grass grow so tall in front of the hives that the bees can hardly get in and out. Keep the grass clipped short; and if you haven't time to mow it

yourself, put a few sheep in the apiary and they will keep it short for you.

When examining a colony, and the frames have burr-combs on them filled with honey, do not allow this honey to drip to the ground to attract other bees. Hold the dripping frame over the hive so that the bees of that hive will take care of it. If you wish to scrape or cut off the burr-combs do not throw them out in the yard. Put them in a lard-can fitted with a tight cover. Do not give other bees a chance to get at these wet burr combs, as it will be more than likely to start robbing.

Never leave combs, fixtures, or tools on the floors where people have to walk; for if you have visitors, and they happen to be beekeepers who are careless, germs from diseased honey or combs may be on the soles of their shoes. Shallow steel pans are fine for holding supers or combs; but old newspapers are cheaper and better than the pans, as they can be burned when soiled.

If an inspector comes to your place to examine your bees, have him wash and disinfect his hands and tools before beginning his work. Have this done in your presence—do not take his word for it. A good many inspectors obtain their positions thru

political pull, and know very little about bees. These are more likely to scatter the disease than to clean it up. There are many fine inspectors who are doing a world of good, and who are experts in their line; but for fear that one of the careless kind may happen along I have given this word of caution. We want good inspectors; so when you find one who is not doing the work properly, report the matter at once.

Shippers of extracted honey in barrels should see that these barrels are perfectly tight and that no honey adheres to the outside. Leaky barrels are very dangerous, as the car in which they are being

shipped may be put on a siding and remain for days, allowing bees in the vicinity to rob the honey. This also happens on the platforms of stations and in the wagons which carry the honey from the station. I believe that if a national law could be passed to prohibit the use of barrels in shipping extracted honey we should be able to keep our bees in a better condition. Nothing but *tight tin cans* should be used. It would be a good plan to have extra outer cases for section honey, to catch the drip should a section get smashed.

Morgan, Ky.

COUNTING THE COST OF SUGAR

BY JOSEPH GRAY

We never feed in this locality. The discussion regarding the feeding of sugar is of vast importance. Let me take J. L. Byer's statement, page 1016, Nov. 1, "with a good flow from buckwheat, say 40 to 60 lbs., even the Jumbo hives will need feeding after supers are off." Buckwheat honey is a poorer grade than clover. Figure the cost of taking off that honey and marketing it. Again, figure the price of sugar, and freight on the same—labor of making into syrup, and time occupied in feeding.

We leave sufficient honey to carry the apiary thru. When we get to our last extracting we estimate by previous experience how much will be needed. If we decide it is necessary to leave four full combs in the super, four are left; or if it is a question of apiaries, possibly four out of ten apiaries are not extracted the last time.

We motor to a yard; and with a long box holding 40 combs we pick up full combs and

replace with empties. We next go to a yard needing feed. The hives are hefted, and those needing stores are fed by exchanging full combs for empties. If necessary to go below we do so, and a bucket of mud is used to close the joint between the brood-nest and super and *destroy the scent*. A sharp eye is kept for robbers, and every caution taken to insure against them. On some days we can work right along; on another day it will not be two hours before it is necessary to stop. Sometimes we can work well part of the day, and during the rest of the day be unable to touch a hive. Much depends on the bees. With an auto, if we can work only half an hour at one apiary we close up and motor to the next.

I think if some of the beekeepers will stop to figure out the cost between a low-grade honey and a feed-bill they will be likely to cut out the latter.

Heber, Cal.

LAWS TOO DRASTIC COULD NOT BE ENFORCED

BY HARRY LATHROP

In the June first issue, page 425, appears an editorial, "Legislation too Drastic." I wish heartily to second this. Relative to laws regarding the sale of honey from apiaries in which American foul brood exists, I once asked in our Wisconsin convention what a beekeeper would do with a crop of forty thousand pounds of nice extracted honey if the discovery should be made before marketing that foul brood actually existed in the yard. The only answer to such a question is, "Sell it." There is no other common-sense answer. Much of the

extracted honey placed on the market in certain parts of the West and of the East during the past ten years has been produced in yards where foul brood existed. Foul brood in the brood-chambers does not affect the purity, for food purposes, of honey produced over queen-excluders, and no chemist on earth could tell which is so produced and which is not.

I have had opportunity to observe American foul brood closely for a number of years, altho I think my apiary is now free from it. The disease is not very contagious

unless the hives are so neglected that bees from healthy colonies are allowed to rob weak or dead foul-broody colonies. Honey from the extracting-supers will seldom propagate the trouble. Extracting combs cleaned up by the bees and placed away dry will not cause foul brood thereafter. Hive-bodies that are perfectly dry and clean will not spread the disease if used for clean stock. Frames from which the comb has been boiled in a melting-vat are safe to use again, and need not be destroyed.

American foul brood need not discourage any one who attends properly to the bees. It will ruin a neglected apiary if time enough is allowed.

The wintering problem is the question of greatest importance with us. Dysentery will destroy more bees than foul brood on the average. It reduced an apiary of 140 colonies to one of 30 for me in one winter. Foul brood never was that bad in my experience. So far as legislation is concerned, it would be an easy matter for an official to forbid a beekeeper to sell a nice crop of honey that had been produced in an infected apiary; but if the official should happen to discover it in his own yard the case would look different. Laws not founded on common sense will not be enforced in this country.

Bridgeport, Wis.

THE REASON FOR THE DRONE-LAYING QUEENS

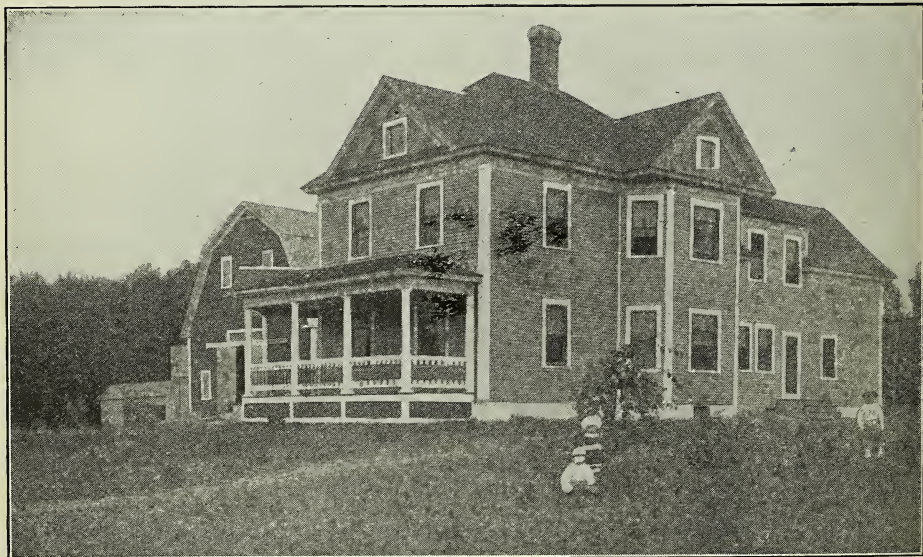
BY A. C. AMES

On my inspection trips among beekeepers over the state I find some complaint in regard to queens purchased from queen-breeders, turning out to be drone-layers. The complaints have been directed against men whom I am personally acquainted with, and whom I know to be among our very best queen-breeders. It is possible for a well-meaning queen-breeder to send out unintentionally a drone-laying queen as an untested queen.

To illustrate: I wish to describe a case that occurred in my home yard this season.

I had produced a batch of fine cells and used one to requeen a colony that had a failing queen. In due time the cell hatched, and on one of my visits home some three weeks later I found the queen to be laying; and as she was a very fine-appearing queen I took it for granted that *that* colony was in good condition or soon would be. On account of being away from home almost continuously I am sometimes unable to give my bees the attention they should have.

On my last visit home (Sept. 22) I



Home of O. B. Griffin, Caribou, Me.

noticed from an entrance examination that that colony did not appear very strong, and that the bees flying were all old ones. I examined the colony and found the greatest amount of drone brood I ever saw in one colony, without a cell of worker brood. I am certain that that queen never mated, and, as a result, never produced a worker bee. Judging from appearance alone one would consider that queen very good. She must have been confined to the hive by bad weather. I examined her for a defective wing, but the wings seemed normal.

The past summer has been for the most part rainy and cold, and there is probably more of this kind of trouble than usual.

Peninsula, Ohio.

BEES IN A SOLID MASS SIX FEET HIGH

BY O. B. GRIFFIN

The picture shows the largest swarm of bees I ever took down. This swarm was hived in July, 1915, and consisted of six or more swarms all in one cluster. From the ground to the highest point it was 6 feet 4 inches in length. The extreme width was 4 feet 2 inches. Where the cluster was solid it measured three feet thru, altho the smallest diameter was only $4\frac{1}{2}$ inches at the ground. It was certainly a magnificent sight to one who loves bees. I divided the swarm and hived the divisions, but they



A mammoth cluster of bees, six feet high, made up of six swarms that settled together.

made quite a bit of trouble before they were settled to stay.

Caribou, Me.

IS IT BEST TO HAVE ONE DOMINANT RACE OF BEES ONLY?

BY T. T. TAYLOR

There have been frequent discussions regarding black bees versus Italians. In the March 1st issue for last year the editor says that the blacks seem to be the dominant or persistent variety. This suggests to me that a wider and more important question can be raised here than that of whether the black or the Italian bee is the better. This question is: Is it desirable to have a number of varieties and hybrids, as at present, in any country, or only one dominant variety? This is not a question for beekeepers of the United States only; it is a question which, I think, should be considered by beekeepers of all countries where there is more than one variety. In fact, I think this question pertains more to other countries than to the United States, where the Italian bee is so popular, tho apparently not the dominant one. I will put my

arguments in favor of this question in a few numbered paragraphs which, I think, involve more or less the conclusion which I draw from them—namely, that it is best to have only one dominant variety in certain countries if not in all.

1. The aim of beekeeping is predominantly an economic one. It is the gathering of honey, a food which is otherwise going to waste, in the largest quantity and with the least effort. In other words, the predominant aim is monetary profit. Personal pleasure, hobby, or the color of the bee, are but secondary considerations.

2. If all the varieties of bees in a country were left to interbreed and compete, a single variety would in most cases, if not in all, be produced which we should call a dominant variety because of its being a resultant survival of all the others. Only

one variety, the best, all things considered, is required. Such a dominant variety would tend to become fixed in its characteristics; but it would always be capable of very considerable gradual and permanent improvement by elimination and selection.

3. Tho there is much difference between the different varieties in honey-gathering, swarming, disposition, etc., there is not so much difference between the economic results of that which we may call the dominant variety of certain countries, and the best imported variety or improved strain. We are, perhaps, as likely or more likely to obtain a better bee by consistently improving the dominant variety than by improving any other variety or by producing hybrids.

4. Bees differ from other domestic live stock, such as cattle, in that we cannot control their mating and breeding to the extent that would enable us to maintain a non-dominant variety as our sole variety. That is, so long as we continue to breed non-dominant varieties we must always expect to have along with them numerous mongrels of undesirable quality; whereas if we breed only one dominant variety we should be practically free from such mongrels. The maintainance of the queens of an apiary will, on the present system of cross-breeding, always be a more or less troublesome and costly item; and it is desirable that this cost and effort should be reduced, as it could be if we had only one variety.

5. There may be said to be three methods of improving the bee as of improving plant and animal life generally; namely, by elimination, selection, and hybridization. The hybridization method breaks up the hereditary constitution of the organism so much that we lose one good point while breeding for another. Thus improvements made by the hybridization method are not easily fixed but are easily lost. The hybridization method is unnatural and undesirable except as a means of inducing slight variations to work upon when the stock is too fixed. The eliminative method is slow but sure; the selective method is quicker but less sure. The eliminative method is a safe one because it is comparatively easy to judge what a defect is, and the rest is left to nature. The selective method is not so safe, because, while one may judge a good quality, such as honey-gathering, there are other qualities which may go along with it, such as a tendency to disease, that are not so easily judged. Thus in breeding from one parent on the strength of one or more selected good qualities, we may carry

forward, quite as extensively, a bad quality that is either unrecognizable or ignored. In the method of elimination we rear our future stock from a large quantity of individuals having very numerous points which are intermixed by cross-fertilization; whereas in the method of selection we rear our future stock from comparatively few individuals which may not contain all those points which it is desirable to carry forward. Suppose, for sake of argument, 100 queens of one variety, but each having slight differences of quality. If we eliminate 10 defectives we rear from and carry forward the points of all or some of the remaining 90. If, on the other hand, we rear from two individuals selected for desired points, we leave behind the various points of the remaining 98, and at the same time lose, to a great extent, the assumed advantages of varied cross-fertilization in maintaining vigor. The method of elimination can be and should be carried out by every beekeeper; but the method of selection may be of doubtful future benefit, even when carried out by an expert. In the elimination method we co-operate with nature; but in the selection method we may be fighting against nature. Therefore elimination, the primary method of nature, is still the primary method by which man can adapt domestic organic life to his requirements; and selection, tho more rapid, should be used only in moderation, and subordinated to elimination, for fear of specializing in defects, and inbreeding; while hybridization should be regarded as a dangerous method to be used only occasionally, and in such a way as not to break up the hereditary constitution of the organism.

I do not expect that all the arguments in the foregoing five paragraphs will be accepted. I do not say that I accept them all myself without qualification or further consideration. But considering the argument generally—namely, that the aim of beekeeping is mainly economic; that nature has a tendency to produce one variety in a country; that one variety is sufficient; that there is little difference in the economic results of any of the varieties; that the breeding of bees cannot be completely and continuously controlled by man, and that some of the present methods of breeding are unnatural, and unlikely to result in permanent improvement without accompanying weaknesses, I am inclined to draw the conclusion from them that it would be much better for the present and future of beekeeping, in some countries at least, if beekeepers were to co-operate in improving

that variety of bee which is found to be the dominant one of their respective countries. I think that, in the case of some countries, if only a fraction of the effort that has been expended on importing, producing, and maintaining non-dominant varieties had been applied to the gradual improvement of the dominant variety, greater progress would have been made than has been made in those countries up to the present time.

But this question is not only one of improving the bee, and, thereby, beekeeping; it is one, perhaps, of saving beekeeping from partial disaster. Many plants and animals are now more subject to disease than their less cultivated progenitors were. Why is this? It is not a condition that we should regard as unavoidable in the culture of plants and animals. I think it is due to carelessness in not letting nature have more of her own way. That is, it is due to an insufficient application of the slow and natural method of elimination, to too much selective propagation and inbreeding, and to a mistaken degree of hy-

bridization, thereby breaking up the hereditary constitution of the organism. So it may be in regard to bees. Many beekeepers in the British Isles would give up all thought of improved strains if only they could get a bee that would live at all. It is probable that the reason why Isle of Wight disease is so bad here is that the dominant race has been thus broken up by intercrossing with foreign varieties, thus producing hybrids and mongrels of weak constitution which cannot resist what is, perhaps, only an old-standing bee-disease.

If this policy, which we may call the dominant bee policy, is correct, how can it be carried out? It can be only partly done by legislation prohibiting the importation of bees; for no doubt selected non-dominant strains could be maintained in some countries indefinitely, tho the number of such strains would certainly be reduced. In addition to legislation it would be necessary for beekeepers to co-operate thru their associations in cultivating and improving the dominant variety only.

Acacia House, Beverly, England.

MICHIGAN STATE BEEKEEPERS' CONVENTION

BY E. R. ROOT

It is impossible to give a detailed report of this convention, on account of the limit of our space; and we can do little more, therefore, than give some of the important points brought out in the discussions.

Mr. David Running, one of the best beekeepers in the state and in the United States, made a most excellent presiding officer. He not only understood the fine points of discussion but took particular pains to draw them out. In some cases he kept the speaker upon the platform, after delivering his address, so that those who desired to do so could ask him questions. This feature, apparently original with Mr. Running, added no little to the value of the address, and at the same time drew out points overlooked or not thoroly understood. The general character of the papers was of the very best, and credit is due to Sec. F. Eric Millen for the excellent program which he prepared.

HOW MUCH MORE COMB THAN OF EXTRACTED CAN BE PRODUCED?

Some of the beekeepers held that they could produce a half more of extracted—some nearly twice as much. The question received more than ordinary attention for the reason that extracted honey appears to be going up while comb honey is going

down. Whether one could afford to produce comb honey in view of the rising prices of extracted was a fair question to ask. The general feeling seemed to be that both comb and extracted should be produced, but more of the latter, as it is not wise to put all our eggs in one basket. Moreover, there are some colonies that do better for extracted, and others better for comb.

STRONG OR MEDIUM COLONIES FOR THE PRODUCTION OF COMB HONEY.

Practically all of those present taking part in the discussion agreed that the strongest colonies in the spring are not necessarily the best for the production of comb honey, for the reason that they are inclined to swarm before the actual honey-producing season comes on. On the other hand, medium-strength colonies are at about the right strength by the time the honey-flow opens up, and are, therefore, less inclined to swarm.

COMB HONEY WITHOUT SWARMING.

Mrs. Wilber Frye, of Sand Lake, Michigan, was pronounced by Pres. Running one of the most successful comb-honey producers in the state. She was called to the platform and asked to give her method of producing honey. It will not be possible

or necessary to give here the full details, because we have asked her to prepare an article for GLEANINGS, telling just how she proceeds. But for the present, at least, we may say that she produces comb honey by dequeening her colonies, then cutting out cells nine days afterward. In answer to repeated questions she said that she could not discover that the queenless colonies were much inferior to those operated by other methods and with queens. She has worked out a system of dequeening colonies for the production of comb honey that seems to give remarkable results in her locality and with her management. She and another woman do all the work, running a series of outyards, producing very fine comb honey, and that, too, without any swarming.

DIFFERENCE IN COLONIES IN THE PRODUCTION OF COMB HONEY.

It was clearly shown thruout the discussion that there is quite a difference between different colonies in the production of comb honey. Some that are well adapted for extracted are not fitted at all for comb. Colonies that produce dark-colored cappings, or are inclined to swarm, should be run for extracted. Those that show the best results in previous years in the production of comb should be selected for comb honey.

In this connection the color of the cappings received considerable consideration. Some argued that the dark cappings are caused by too little ventilation. Others held that the strain of bees and the season have something to do with it. It was stated that a slow flow causes darker-looking comb honey than where the nectar comes in rapidly.

EFFICIENT BEEKEEPING.

This question was handled in a masterly manner by Mr. E. S. Miller, of Valparaiso, Indiana. Mr. Miller called attention to the wasteful methods employed by many beekeepers, and he explained how, by the use of proper tools and equipment, with the right kind of planning one may very greatly increase the crops with the same labor. He mentioned a case particularly of one beekeeper who was kept busy thruout the season taking care of 60 colonies, while another, his successor, took care of 400 colonies in the same locality, with an expenditure of time equivalent to only two days in the week, the rest of the time being devoted to another business. This called forth a lively challenge from several, and then it developed that Mr. Miller was the man who was able to accomplish the feat. Mr. Miller is manager of a local telephone

company, and is not only a trained business man but a good beekeeper. Just how he is able to accomplish so much work with so little labor he will explain later on in GLEANINGS. When the question was raised whether it was possible for him in so small an allotment of time to do good work among so many colonies, a neighbor of his, Mr. Bull, said he actually knew that he did do it.

CHOOSING A LOCATION.

This was admirably handled by Ira D. Bartlett, of East Jordan, Mich. In the order of their importance he puts the man first, location second, equipment third. The locality and the man must work together. The flora is of paramount importance. It is desirable to have a succession of honey-producing plants to build up the bees in the spring, to provide good forage in the height of the season when the main crop is secured, and a fall flow if possible to put the bees in proper condition for winter. A protected spot in the locality is essential. He would have woods or shrubbery around the apiary, not only to protect the bees but to give them an opportunity to get out in early spring to get pollen. Proximity to water is important, but he avoids putting the yards in a low damp place. If possible the locality should be where there are good roads, churches, and schools. He does not place the bees too near a lake or stream. Many bees are lost by dropping on the surface of the water.

A southeast or southern slope is best. The apiary should be placed on the upper part and the honey-house and buildings on the lower. Mr. Bartlett places the hives in long rows for convenience in shoving a wheelbarrow from one hive to another when loading on supers. When asked whether bees placed in long rows do not drift more or less he admitted that this might be true, but his hives are far enough apart (ten feet) so that it does not cause any trouble.

A SCHEME FOR EQUALIZING COLONIES.

Mr. Bartlett then went on to tell how he had equalized his colonies one season by putting a weak one in place of the strong, causing the flying bees of the strong to join the weak. He admitted that this required a great deal of care to prevent some brood from being neglected in the stronger colony; but he never made it a practice to equalize them except in warm or hot weather.

This brought out considerable discussion, but thru it all Mr. Bartlett held his point well. We have asked him to describe

his methods more in detail. He is a busy man; but if we can get him to write we know our readers will be pleased with what he has to say.

THE SALE OF HONEY.

This question was handled by Mr. E. D. Townsend. While he admitted that honey could be sold by the producer to the jobber, yet the objection to this method is that it has to go thru two or three hands before it reaches the consumer. He rather favored selling to the consumer direct. He puts up his honey in friction-top pails, five and ten pound sizes, the former selling for 85 cts. and the latter for \$1.60. If one sells the honey at wholesale he should sell to the one who sells to the consumer.

Mr. Townsend was asked whether he was a friend of the grocer when he sold his honey in pails from house to house. He replied by saying that the grocer does not object if producers do not undersell him. Then the question was asked whether, at the present price of extracted honey at wholesale or jobbing, a retail price of \$1.60 for a ten-pound pail, pail thrown in, is not too low. At this point Mr. R. F. Holtermann, of Brantford, Ontario, made the statement that many beekeepers are not business men; that too many of them retail and wholesale honey at a time when the difference between wholesale and retail is often very small—so little, indeed, that the wholesaler has no encouragement in buying honey to sell again. He believes that one should sell to the jobber at jobbing prices, to the wholesaler at wholesale prices, and to the retailer at retail. When asked how much honey he produced, Mr. Holtermann stated that his crop last year was five carloads, and that he sold thirteen more. He sells only to the jobbers—not to the retail trade.

After Mr. Holtermann had closed there were two or three who took exceptions to his statement that the average beekeeper is not a business man. But Mr. Holtermann hung to his ground. He considers the middleman a blessing in disguise, not "a necessary evil."

Mr. J. F. Moore, a large honey-producer in Ohio, felt that there should be no clash between the two systems of selling. At this point, Mrs. Wilber Frye, of Sand Lake, Michigan, stated that, while she formerly sold her comb honey at 12 cts., she now sells to the jobber at 13½, the jobber taking the entire crop off her hands and paying cash.

Every now and then a joke was fired at Mr. Holtermann for saying that the average beeman is not a business man.

SUCCESSFUL FEEDING IN A CELLAR.

While it is usually regarded as bad practice to feed in a cellar, yet Mr. Leonard Griggs, of Flint, Michigan, successfully fed 58 colonies three days after he put them in the cellar, and they all came out in fine condition in the spring. The cellar is first warmed up with an oil-stove, so it is about the temperature of a living-room. He takes ordinary ten-pound pails, punches small holes in the top, fills them with a thick syrup, and gives the syrup (hot) to the bees on top of the brood-nest. The syrup is all taken down in two or three days, and then the feeders are taken off.

THE POSSIBILITIES OF THE COMBLESS PACKAGE.

This was discussed by A. G. Woodman, of Grand Rapids. He has had very satisfactory results getting bees from the South early in the spring, and has almost come to believe that a beekeeper could afford to let his bees die after securing the main crop, sell the honey, and then buy bees in combless packages early in the spring to fill up his hives. Three pounds of bees in a hive by the first of May give a nice start; and the rapidity with which the queen lays in these combs soon builds up a good colony. In a good season a pound of bees pays for itself well. The feasibility of the pound-package business depends somewhat upon the price at which the bees can be delivered in the northern states. Mr. Woodman thinks that \$3.00 for three pounds of bees and a queen is a fair price; and if they can be secured at these figures one ought to make a fairly good return on the investment.

While in Canada a few days ago we ran across a beekeeper who from eighteen 1-lb. packages of bees and a queen secured 1800 pounds of honey, and 18 colonies fit for wintering packed outdoors. While this was quite a remarkable record we heard of a number of instances at the Michigan convention where others had done quite as well.

PROTECTING COMBS FROM THE MOTH-MILLER.

One of the questions from the question-box was what to do with wet extracting-combs just from the extractor. President Running made the suggestion that they be placed in a cool cellar. The temperature of the cellar he said is too cold for the eggs of the moth-miller to develop; that as soon as cold weather comes on, if the combs are taken out a freezing kills the eggs. This is quite a valuable point that many beekeepers would do well to consider.

On the evening of the second day a

banquet was served by The A. I. Root Company, of Medina, Ohio, and M. H. Hunt & Son, of Lansing, Michigan. This was served at the Baptist church. About 150 were present. Among those who responded to toasts were President Francis Jager, Chief of the Division of Bee Cul-

ture, Department of Agriculture, University of Minnesota, St. Paul; Mr. F. Eric Millen, formerly foul-brood inspector for Michigan; Mr. B. F. Kindig, and Mr. Morris.

Numerous prizes were offered for best displays of honey. At this writing we have not received a list of the winners.

LETTING THE BEES FASTEN THE FOUNDATION

BY M. JOHNSTONE

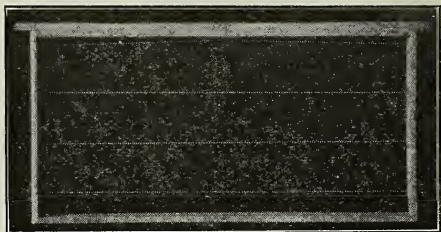
Enclosed find an illustration of a method of fastening full sheets of foundation without using the groove or wedge. The method permits the use of a shallow top-bar. This is experiment number twelve, issued by the Apicultural Department of the Ontario Agricultural College, and originates with Professor Pettit.

As seen in the illustration the wiring differs from the ordinary in that the top wire is comparatively close to the top-bar (one-half inch), and is fastened in the center of the top-bar by a small staple. The wire otherwise is used as in the ordinary method with the precaution that it must be drawn tight.

The foundation is placed in position on a board the size of the inside dimension of the frame used. The wired frame is then laid on top, the sheet of foundation being pressed firmly against the top-bar; and while in this position it is imbedded firmly.

For some time I have felt the inconvenience of the wedge-and-groove system for extracted honey. The wedges are difficult to drive in firmly, and the sheet of foundation is likely to buckle in putting in the

groove, especially when one is hurried so that it is a relief to turn to this method and fasten so firmly and neatly. Of course the bees do the fastening, perfect combs being obtained in the brood-chamber as well as in the supers. These were obtained the last season in a good flow, which likely would be one requirement.



The method has an added advantage in that broken combs may be replaced without the necessity of digging out the grooves or removing the wedge. The shallow frame also gives the use of two more rows of cells ordinarily occupied by the deeper bar.

Cayuga, Ont.

STATISTICS FOR ONTARIO

BY J. L. BYER

In an article in a recent issue of the *American Bee Journal* Mr. Geo. Kingsmill, of Guelph, gives some startling figures as to the honey production of Ontario this past season. He states it is estimated that there are 10,000 beekeepers in Ontario keeping an average of 30 colonies each—a grand total of 300,000 colonies. With this year's estimated average of 89.6 pounds per colony, that would mean 25,880,000 pounds of honey—I figure it out at 26,880,000 pounds; but a million is not much one way or the other in dealing with figures of this magnitude. He goes on to say that it would take between eight and nine trains

of 50 or 60 cars each to carry the crop if all were marketed. Here I again figure that, counting cars of 25,000 pounds each, it would take 1075 cars to hold the honey, and that would take about 20 trains, each of 50 cars, to handle the product.

But my purpose in making these comments on friend Kingsmill's article was not primarily to try to "figure" differently, but to confess honestly that I was amazed at the magnitude of honey production in Ontario, assuming that the figures are anywhere near correct. Personally I think the estimate too high; for among thousands and thousands of colonies not reported, but

"estimated," I have an idea that the average would be away below the 89.6 pounds mentioned. I base these opinions from conditions locally; for while the crop was extra good here this year in our county, yet I know of many neglected lots of bees that produced practically nothing in the way of surplus. But making allowance for a great falling-off in the estimate, the fact is apparent that there was "some honey" produced in Ontario this year—no mistake about that. Bear in mind that the figures are for Ontario alone. The maritime provinces produce quite a lot of honey, and Quebec still more if I am correct. The western provinces also produce quite a quantity—this year the crop was good in parts of British Columbia and other western provinces as well. A lot of honey is imported from the British West Indies each year—largely by the baking establish-

ments. Summing all together, an enormous amount of honey will be used in Canada this year, as practically none is exported. Considering the population of Canada, I wonder if we are not entitled to be classed as being among the greatest honey-eating nations of the earth. Many beekeepers, and the writer is among them, feel that but for abnormal conditions this year caused by the war, poor fruit crops, etc., the market would have tumbled—in other words, the supply would have more than equaled the demand. As it is, honey is practically the same price as before the war, while many—in fact most—other foodstuffs have advanced from 20 to 100 per cent or more. Under present conditions this year, honey is being used extensively in hundreds of homes that previously hardly knew the taste of it, so the advertising we are obtaining should be worth something.

WHEN JOHNNIE COMES CALLING

BY FLORENCE B. RICHARDSON

"Johnnie" is an ex-circus clown who came to this "neck of the woods" a few years ago with the avowed intention of "showin' these fellers how to keep bees!" He came well prepared with his beautifully made and ornamented *box* hives, painted a lovely shade of some bright color. Green is his favorite at present—a real green, too.

The first real shock to his enterprise came when the county bee inspector warned him to put his little pets into movable-frame hives and gave him ten days in which to do so. Mad? Why, he is said to have buzzed about like a hornet whose nest has been destroyed; but he obeyed orders, much to his chagrin, altho he had to hire the inspector to do the transferring for him, as he had no idea of the method of procedure.

Johnnie came to call on me, not knowing that I knew anything about bees, and in his inimitable way proceeded to introduce me to the first principles of beekeeping, when he caught sight in the back yard of a box hive I had just bought and hadn't had time to transfer.

He began by saying, "Great country fer bees;" and when I agreed with him he continued, "Know much about 'em?"

I admitted not knowing it all, and then Johnnie launched out on his hobby. He looks funny while talking earnestly, and any one would know by just a glance at his queer little face that his idea is to help and not alone to appease his vanity.

"Tell ye one thing;" and the stubby first finger of his right hand beat time to each word in the palm of his left; "ye'll haf to move them bees outer them boxes, and do it *pronto* or thet bee feller will make ye do it!"

With this information he looked up at me very knowingly, and slowly winked one eye.

"Yes, Johnnie," I told him, "I'm going to do that very thing just as soon as I can get over to town to get a smoker."

"No need to go to town a-tall," he answered; "got a puffektly good smoker down to my place, and yer jest as welcome as ye can be."

"Well," I said, "I've also got to get some frames wired," and—I got no further, for Johnnie broke in with a snort:

"Now, ma'am, don't ye go gittin' foolish like thet! Why, them wires is the worst things ye can put inter hive. They jest plays all kinds of tricks, and they'll make ye all kinds of trouble."

"But why?" I asked. "Every one who keeps lots of bees in the East wires the frames and there is no trouble."

"Well, now ye've *hit* it. East is East, and California is California. Now," with a knowing twinkle, "I tried thet wirin' business once, and I *know* what I'm a-sayin'. Why, I had the combs melt right down jest 'cause them tormented wires got so hot!"

"But, Johnnie," I protested, "how do



Fifty-first convention of the Michigan Beekeepers' Association,

you know it was the wires that melted your combs?"

"How did I know? Well, what else could hev done it? Never had no others melt, and you know 'swell as I do thet them wires attracts heat!" This was said with a finality that brooked no dispute.

"But how can honey be extracted from frames that are not wired?" I asked, wondering what possible reason he could offer; and it was a typically Johnnie remark, given with a grin which showed the absence of a couple of front teeth.

"Well, ma'am, I'll tell ye. I ain't never done no extractin'; comb honey's good 'nuff fer me!"

I must have looked either convinced or beaten, to judge by the smirk of self-satisfaction he gave me.

This was my first lesson from Johnnie, but not the last. His smoker talk was to me a keen bit of enjoyment, altho to this day he doesn't know it, and I hope he'll never find out!

"Now, ma'am," Johnnie's usual approach, "never try to light thet smoker frum th' top, fer she jest won't ketch, and

ye'll fiddle away a hull forenoon, may be, 'fore she gits agoin'."

"No, Johnnie," I said, "I always——" I had forgotten for the moment that I knew nothing. "I'll try it from the bottom;" and to bear out my statement I tried to insert a match in the air-hole at the base.

"Here! here!" he cried in alarm; "ye'll spoil thet whole contraption if ye do thet. Them smokers is funny things—jess like my ole mule, contrary as n'thing. Now this thing here," taking hold of the bellows, "fills up with air;" and when I looked innocently up and inquired, "Hot air, Johnnie?" he answered:

"Oh! no, ma'am, any kind of air," altho he is not usually slow at a joke. When he is giving instructions, however, he is too much in earnest to pay any attention to such feeble attempts as this.

He continued, "Well, ye pull them sides together this way, and it blows air inter the can part; and ye see if ye light her from the top all yer fire goes out the snoot 'stead of lighten' the rest of it. Now I takes a chunk of gunny sack"—who in California would be guilty of saying burlap?—"and I lights



Fifty-first convention of the Michigan Beekeepers' Association, held at Grand Rapids Nov. 29 and Dec. 1. See report pages 1173-1176.

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the fringie place on the edge, then drops her in quick and pumps like all Sam Hill on them bellows, and fore ye know it ye've got some smoke."

This whole performance had been acted out for my benefit; and if Johnnie ever made the *hit* as a clown that he made with me I can't understand his escape from the circus manager.

"What's this little jigger on the side of the bellows?" I asked him.

"Oh! thet—well, I'll tell ye. I ain't never been able to find no real use fer thet. It's always in the way, and I've threatened to take it off, but knew it must've been put on there fer somp'n'."

"Wouldn't it be to hang it up hy? Looks to me as tho it might jst hang beautiflly on the side of a hive."

"By jings! I bet ye've struck it, and here I've ben a bustin' my back reachin' fer the thing when it orter ben right there all the time."

On raising queens and controlling swarming Johnnie has his own ideas—or, rather, he believes in letting "nater" do it for him.

"But, Johnnie," I protested, "you must

lose lots of swarms. You're not always here to see to things, are you?"

"Well, now, I'll tell ye. Sometimes I *do* lose a swarm; but, Lor' bless ye, what's losin' a swarm to disturbin' the poor critters every few days? and I'll tell ye I don't hev much faith in this business of keepin' bees from swarmin'. 'Cordin' to my notion the more ye fuss with 'em the more they swarm! An' look at thet feller over here, fiddlin' away raisin' queens" (contemptuously): "why, they ain't no good after he's raised 'em, fer it's good deal better to let nater raise yer queens 'stead of puttin' in a stranger thet may he will be crosser than m—m!"

Johnnie takes off no honey until fall, and then has nothing but section honey, which is so cheap here that it seems a crime to waste the bees' time making it; for wax is as high as it is anywhere, and he could increase his bee income four fold by extracting. Years when other people get a big crop of extracted, Johnnie complains of a poor yield, and shakes his head unbelievably when he hears of some other fellow's big crop.

Hughson, Cal.

Heads of Grain from Different Fields



THE BACKLOT BUZZER

BY J. H. DONAHEY

Jerry Aster thought he was all thru with his extracting for the season till his new truck he had loaded with comb honey got a skiddin' on the asphalt pavement. Jerry says it went around so fast that he not only lost all his cargo but a set of upper teeth besides.

SONNET ON THE PASSING OF A YEAR.

BY GRACE ALLEN

and must we bid you too farewell, dear year,
And see you pass with drooping aged head,
Tho with unhesitating stately tread,
Down long dim paths the timid-hearted fear?
aye, go you must, you too, however dear,
And pitch your tent among the quiet dead
Of numberless forgotten years that fled
long since across our world of Now and Here.

et not uncomforted we see you pass.
Our hearts have let us know this thing is true;
ho Time may trail his garments o'er our grass,
The things he claims shall God Himself renew.
and nobler than the old the new shall be,
ew years, new faith, new life, eternally.

Western New York Meeting.

The Western New York Honey-producers' Association held its annual meeting at the American Hotel, Akron, Tuesday, Nov. 14. The attendance was large, and the meeting proved the most interesting and profitable in the history of the association. Nov. 14 was known as "Honey day" in Western New York for 1916.

Many new members were enrolled at the meeting, and the association is in a very flourishing condition. According to all reports the honey produced by its members was sold at a good price. There seems to be an increased demand for honey produced in western New York.

Bees are in fair condition for winter, and clover conditions are about 75 per cent.

The morning session, Nov. 14, opened at 10:30. The secretary and treasurer made their reports, and the assemblage then discussed how, when, and where to buy supplies.

At 1:30 the afternoon session was called to order. Discussions of the regulation of field meetings came next, and we voted to make the field meeting a general basket picnic, each member inviting his customers to attend and enjoy a good time. Delegates to the state meeting were then elected.

"Do we co-operate as we should for our mutual benefit?" was the title of an interesting talk by Charles Stewart, of Johnstown, N. Y. Discussions and questions followed.

"Why I Produce Extracted Honey Only" was the title of a subject by J. Roy Lincoln, of Niagara Falls. Jas. Srout, of Gasport, spoke on outdoor wintering, and discussions followed. "Acting as Our Own Commission Man" was the title of a subject by Mr. Meyers, of Ransomville. Mr. J. N. DeMuth, of Pembroke, spoke on queen-rearing nuclei, and also exhibited an outfit. Mr. G. C. Greiner, of La Salle, N. Y., spoke on necessary and unnecessary appliances around the apiary. Mr. Greiner handled this subject in a very satisfactory manner, for he is a man of many years' experience with bees.

The present officers were re-elected for the ensuing year, as follows: President, John N. DeMuth, Pembroke; Vice-president, J. Roy Lincoln, Niagara Falls; Wm. F. Vollmer, Akron, Secretary-Treasurer.

The next field meeting and basket picnic is to be held at the apiary of Vice-president Lincoln, at Niagara Falls. The date will be announced later.

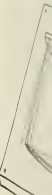
John N. DeMuth.

Then the Moths Can't Get Them.

Mr. Byer's difficulty, p. 1016, Nov. 1, as to saving combs from the moths and still getting the brood-nest in shape for winter without much feeding (some years none) may be met by placing the brood-chamber on top of the super after the main flow is

over. The
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fall honey
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be stored
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work; but
stored when
combs are
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a swarm
the hive was
was too small
I wish Mr.
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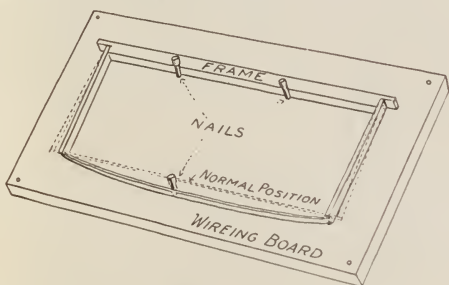
over. This will give the bees room, preserve the combs from moths, and send the fall honey (if it comes) into the brood-nest. If more is gathered than is needed it will be stored in the super below, to be carried up into the brood-nest later on. This is the way I managed 20 years ago. It is some work; but the knowledge that the honey is stored where it is needed, and that your combs are safe, pays for the trouble.

On page 906, Oct. 1, Mrs. Allen speaks of a swarm deserting a shallow hive because the hive was not shaded. Possibly the hive was too small in the judgment of the bees. I wish Mrs. Allen would try putting an empty super under the hive for 24 to 48 hours till the swarm has cooled off, and is down to business.

Toronto, Can., Nov. 10. F. P. Clare.

How I Tighten the Wires.

I read Mr. Niver's description of his plan of wiring frames, page 323, April 15; also a number of similar plans that provide for pushing in the end-bars while wiring to insure tight wires. After trying that plan I found it quite hard to bend the end-bars without injuring the frame.



I use a wide board like a hive cover, and drive two nails to hold the top bar, and then another to spring the bottom-bar down, which causes the wires to be tightened when released.

W. C. Campbell.

Grant City, Mo., April 26.

An Insoluble Whitewash.

Unless it is something old, which I have not chanced to see, the readers of *Gleanings* may be interested in the following clipping from the *Pacific Homestead*. It may be similar to the "powdr paint" which has been mentioned recently.

"In one of the foreign countries a whitewash is used which will not rub off, it being prepared as follows:

"Dissolve two pounds of ordinary glue in seven pints of water; and when all is dissolved add six ounces of bichromate of potassium dissolved in a pint of hot water. Stir the mixture up well, and then add sufficient whiting to make it up to the usual consistency, and apply with a brush in the ordinary manner as quickly as possible. This dries in a very short time, and, by the action of light, becomes converted into a perfectly

insoluble waterproof substance which does not wash off, even with hot water, and at the same time does not give rise to mold growth, as whitewash made up with size often does. It may be colored to any desired shade by the use of a trace of aniline dye or powder coloring, while by the addition of a small amount of calcic sulphite its antiseptic power is much increased."

E. L. Sechrist.

Fairoaks, Cal.

Winter Cases for Seventeen Colonies.

When putting my bees in winter quarters I first filled three long winter cases which hold 17 hives. These have dry, tight, $\frac{3}{4}$ -inch floors, eight inches from the ground. The hives are arranged carefully on these floors, then the entrance "tunnels" are put in place. The sides and ends are set up, hooked securely, and straw and clean chaff closely packed around and above the hives. Lastly the roof is put on and nailed securely. The roof is made of $\frac{3}{4}$ -inch tongued-and-grooved siding or flooring, which is covered with three-ply asbestos roofing nailed on with tin caps and short, heavy nails. These houses are cheap, dry, wind and chill proof, and save wonderfully in stores and winter loss.

The remainder of the colonies are wintered where standing, by first jacketing with heavy, double manilla paper, and lastly with a double roof made of a large piece of asbestos roofing laid loose on top of the hive, and held in place with brick or heavy stones. With plenty of stores in the brood-chamber, and a burlap bag filled with clean chaff in an empty super, the bees winter all right.

B. F. Albaugh.

Covington, Ohio.

A Drone-Laying Queen Becomes Fertilized.

Some time in June I had occasion to shake a swarm from a single-story hive; and the combs having a surplus of honey I placed over a weaker colony with an excluder between, intending to use them as an extracting-super. Not giving the colony any attention until the season for extracting arrived I was much surprised to find the queen in the brood-chamber had been superseded, and the only laying queen in the colony had been bred in the super; and having no exit to allow of a mating-flight she was laying eggs producing only drones.

The queen was from my best stock, and I caged her a few days to figure out an opportunity for testing whether a practical plan of having her mated were possible. About the third day after caging I found a nucleus that was suited to make the trial, it having had neither queen, brood, nor eggs, for a week or ten days.

The queen began laying the day after introducing, and her eggs hatched worker brood or bees. None of the brood had emerged from the combs where she had previously laid, so her activity as a layer had not been long continued.

Howardsville, Va.

B. F. Averill.

GLEANINGS FROM QUESTIONINGS

L. P., Ryors, Mo.—When is the best time to sow buckwheat for the bees, and what variety is best?

A. The first week in July is considered the best time to sow buckwheat. The Japanese buckwheat has been preferred for a good many years, altho of late the silverhull has given the best results in honey.

W. J. N., Cleveland, O.—What are the names and addresses of good French, German, and English bee magazines?

A. Schweizerische Bienenzeitung, Editor, Hans Moos, Sonneggstrasse 61, Zurich, Switzerland. German.

Deutsche Imker aus Bohmen, Prague, Bohemia, Austria. German.

British Bee Journal, 23 Bedford St., Strand, London, England.

L'Apiculture, 28 Rue Serpente, Paris, France.

L. P., Ryors, Mo.—Which is the best method of keeping bees in the summer—under a good shade or in a regular bee-shed?

A. Partial shade is better than either plan. Small grapevines at the south of each hive to afford partial shade during the heat of the day are preferable to anything else, altho the majority who find some shade necessary use shade-boards to prevent the hives from becoming too hot.

W. F. B., Akron, N. Y.—Do black, hybrid, or Italian colonies affected with European foul brood ever rear queens naturally and have the queens mature? If artificial methods of queen-rearing are used, the larvae in the queen-cells usually develop the disease, even if pure Italian stock is used. Is this a rule or an exception?

A. Our Mr. Pritchard says that when he was in Virginia he grafted cells in a colony that was quite badly affected with European foul brood, and he succeeded in raising a part of them. As a matter of fact, it is probable that a larva in a queen-cell has an equal chance with any other larva in the hive. There are always some healthy larvae, even in the last stages of the disease.

A. B. C., Illinois. What are the duties of a bee inspector?

A. A bee inspector should look over every square inch of comb in a hive during the breeding season. There is no use looking at the outside of the hive or smelling at the entrance, because bee disease of no kind can be detected except by opening up the hive and examining every piece of comb therein.

There is not much use in going thru a hive after the breeding season or before it, altho one can detect the scales in combs where American foul brood has been present the previous season.

An ordinary bee inspector will not be able

to cover all the territory. He will not pay so much attention to the hives belonging to the best beekeepers and people who are neat and clean, and who, he has every reason to believe, are watching their own colonies very carefully. It is the small beekeepers, those who do not know bee disease when they see it, those who have had very little experience in the keeping of bees, that are more to be feared than these large producers who would for their own sake keep bee disease well within bounds.

Wherever queens are reared, every inch of combs should be examined at least once in a season, and it is better twice a season. Whether the queen-breeder is a good one or not, it is very important that he should have nothing but clean healthy stock.

C. A. S., Ohio. I am puzzled whether to use double or single walled hives. I propose using single-walled hives, and in the fall contracting down to about six or seven frames and placing these frames in a large colony hive which is on the plan of a double-walled hive, but long enough to hold 40 or 50 frames—seven or eight colonies. Do you think this plan will work if I place light division-boards between them, and have a small bee-entrance for each colony so that on nice days they can fly out?

Is it possible to place a queen on each side of a hive separated by a division-board which allows the workers to go back and forth but not the queen? Is one inch of packing enough for this climate, where the temperature ranges from 60 to 10 below?

A. (By Dr. C. C. Miller.) Others have thought of conserving mutual heat by having a hive wide enough to hold seven or eight colonies for winter, but if any one has made a permanent practice of it I have never heard of it. A serious difficulty in carrying out the plan is that, when the change is made in the fall, many of the bees upon their first flight would not return to their new locations, and there would be the same trouble upon making the change in spring.

It is possible to have a hive with two queens in it, one on each side of a middle partition with excluder zinc in it allowing workers to pass back and forth freely, yet keeping the queens separate. Years ago a good deal was said about a hive of that kind in use in England, but I think nothing is said about it nowadays. There seemed to be a good deal of trouble with one side or another going queenless, and no great advantage over a strong colony with a single queen.

In your climate, with thermometer ranging from 60 above to 10 below, an inch of packing may do for outdoor wintering, but more is likely to be better.

A. I. Root

OUR HOMES

Editor

O foolish people, and without understanding; which have eyes, and see not; which have ears, and hear not.—JEREMIAH 5:21.

And this is the condemnation, that light is come into the world, and men loved darkness rather than light, because their deeds were evil.—JOHN 3:19.

A BEEKEEPER WHO IS A DEAF MUTE.

A few weeks ago I was called for, and found a beekeeper who by his motions signified that he was a deaf mute. He did not seem to be sad nor downhearted, however; and even if he could not hear and talk he was one of the brightest and happiest men (apparently) I ever came across. With a tablet of paper in one hand and a pencil in the other he would write not only so plainly that anybody could read it at a glance, but his hands and face added emphasis to the comical way which he had of expressing himself. He called to invite me to take a trip in his Ford automobile down to the Ohio Experiment Station. I shall have to explain right here that he is the entomologist having care of the shade-trees of the city of Cleveland. He was on his way down to confer with Professor Hauser, Entomologist of the station. Perhaps I had better state right here that his name is Charles R. Neillie. Well, with him in his automobile were his two sons—the oldest one, I think, 17, and the younger one perhaps 5 or 6; and it was really a wonder to see that little chap talk to his father by the use of the deaf-and-dumb alphabet. In riding along he would give his father a punch, and then, pointing to some object, make a lot of signs with his little hands; and several times I was tempted to think that the relations between this father and child were happier and purer than, may be, nine out of ten who have the full use of hearing and speech. The older son acted a good deal as an interpreter along with his father. He has been for some years a newsboy in Cleveland, and has saved up money enough so he will be prepared very soon to take a college course.* They seemed to be well acquainted with the heads of the station, and it was a pleasure to me to see the kind and genial reception the different professors gave him at every turn.

* Once on our trip I noticed the father turned around and made a quick sign with his hand to the older boy, who quickly replied. I was curious enough to know what it was the father signaled. The son replied, "He asked me to listen carefully to see if I could hear any unusual rattle with the automobile." You see if the father himself could not hear, as he was making a pretty good speed, he wanted the benefit of his son's hearing to know if everything about the automobile was all tight and secure.

Well, I have something to tell you still more wonderful—yes, several things. First of all, the good mother is *also* a deaf mute, and they have brought up a family of four children; and every one, from the bright little girl only three or four years old, is clear up to date in every line of juvenile progress going on in the world just now.*

My good friend Neillie told me confidentially, but I think he will not object if I tell it here, that his grandfather was an intemperate man and the father followed the grandfather, or was, perhaps, even worse. For this reason friend Neillie is out-and-out *dry*, from the top of his head to the sole of his feet. His three boys, one of them near maturity, have never tasted any liquor nor tobacco in any form or shape.

By the way, it is a wonderful thing to see a man entirely deaf run an automobile; and you might think it unsafe; but after riding with him over fifty miles I could not feel safer, even at a good high speed, with the majority of chauffeurs who can both hear and talk. At a later date it was my great pleasure to visit the humble home of friend Neillie, at 4317 East 116th St., Cleveland; and their beautiful little garden (containing hives of bees) was one of the finest illustrations of supporting a family on a small area of ground that I have ever met. It was *high-pressure* gardening "with a vengeance." Almost every sort of fruit-tree was found on less than one-fourth of an acre, and the limbs were just bending with beautiful fruit of every description.

As friend Neillie is an entomologist, and has (not at his *tongue's* end but at his fingers' ends) the whole matter of spraying the shade-trees of the city, he certainly ought to know how to spray his garden stuff. Huber and I made our trip to Cleveland in a new sedan Ford. Now, friend Neillie had invited us to look over the children's garden in the city of Cleveland; and he suggested that *he* could run our Ford where he wanted to go easier than he could

* Just think of it, friends. How can a father and mother teach a baby to talk when neither can say a word nor hear one? After the first baby has grown so it can talk, I suppose he might teach the other one. While Mrs. Neillie was showing me thru their little home I looked inquiringly at a sheet of paper fastened to the wall, containing the deaf-and-dumb alphabet. She explained that she kept it there so as to teach the children. Now, try as you may, you cannot in imagination comprehend or realize the tremendous task these two parents have gone thru in building up a home and bringing up four children "in the straight and narrow path" in which they should walk.

direct Huber. Now, please consider. He had never seen an automobile before like this in his life; and altho he is a deaf mute he ran that machine all over the city, dodged vehicles, gave a wave of his hand to policemen everywhere, and did not get into a bit of trouble.

There is a beautiful little periodical published by the Ohio State School for the Deaf, entitled *The Ohio Chronicle*. It is in its 44th year. Well, now, in this periodical I find an article written by Mrs. Neillie, that I am going to copy. It ought to prove not only a rebuke, but an inspiration to millions of people who can hear and talk. May God bless the message that it is my pleasure to give from my good friend Mrs. Neillie.

HOW WE GOT OUR HOME

MRS. NEILLIE'S INTERESTING STORY SHOWS HOW ANY ONE WHO WILLS TO OWN A HOME CAN DO SO—THE EFFORTS GIVE A GREAT DEAL OF PLEASURE AND FINAL HAPPINESS—ONLY ABOUT THIRTEEN YEARS WERE REQUIRED TO ACQUIRE A COZY MODERN HOME, ALL PAID FOR.

We were married two years when we decided to buy a home. We had only a very small account in the bank when we started the venture. After looking it up we decided to buy a lot 40 x 200 feet, paying \$25 down and \$5 per month with 6 per cent interest; and we heard of a house for sale, so we decided to take it and move it on our lot, two miles distant. It was a three-room house, and, small as it was, it would be a home for us. "Be it ever so humble, there's no place like home."

We moved into it as soon as it was on the lot, mounted on stilts. The day being Thanksgiving Day, we gave thanks. At the time, my husband was earning only \$1.75 a day, and there were three of us. The factory shut down shortly after we bought the home, and, after a few weeks without work, my husband got work in a tin-mill at \$1.37½ a day. An awful comedown it was to us, so we had to be very frugal.

We decided to get something from the garden. We planted fruit-trees the first year, and had a good garden that helped us out a lot.

We had been in our home just a year, and again it was on Thanksgiving Day that we were discussing how to better ourselves. I had learned the dress-making trade before I was married, and suggested that I put up a sign "Dressmaking." No, Mr. Neillie would not. Just at that minute in stalked Prof. I. F. Patterson, a brother of Miss Nora Patterson, of Columbus, asking Mr. Neillie how he would like to work in the city parks. Of course we were delighted, and gave thanks. It was \$1.50 per day, eight hours work, so it looked good to us.

We were able to keep up the payments on the lot all the time. We borrowed some to pay on the house and for the moving. Then by and by better times came to us; an advance in wages, and we continued to make progress. At times things did not look very encouraging, but a little reflection always showed me that it would be worse paying the same amount for rent, perhaps more. Most of the needed repairs we did ourselves, as we felt we could not afford to hire the work done.

Our trees grew well. We planted grapevines of three different kinds, also berry-bushes, currants, etc., and managed to make use of every foot of land. We kept chickens and bees, and they have always brought us a neat sum.

By and by we got the place paid for, only to venture into another debt to enlarge the home. My

family had increased in size, hence the necessity. We borrowed money from bank at 6 per cent interest, and we were informed we could have the loan for 99 years, and we had to pay interest twice a year.

Would we have the loan for 99 years? Nix! We saw the amount we borrowed would double up in a few years, so we began paying on the loan as soon as we got straightened. There was not quite enough money to get everything done as we wanted, so we let some things go and did all of the interior painting and varnishing ourselves and all small repairs we could, so I got to be a master of saw, hammer, and brush. We built a new coop and out-building—what it is called I don't know, for my husband calls it shop, my boys call it barn, tho we have no horse. To me it should be a storage barn, which, I am proud to say, I helped to build. People gasped seeing me on the roof, putting shingles on, and on ladder painting, and some came to advise that I'd be in the hospital if I worked at that rate. Thank goodness, I have never been there.

Where there is a will there is a way. Any one can own his own home if he has the will, and it helps to teach one to save and make money go the furthest.

Last January we got all clear, and since then we have put in a furnace, cupboard in the pantry, and paid for forty feet of sidewalk that was laid last summer by the city. Furnace and cupboard have been paid for too.

Last summer we had a fine crop from our fruit-trees—four bushels of pears from one young tree, three bushels of plums; there was none to buy for our canning, and we gave quite a lot away. Our grape crop was a sight to behold, so thick with clusters, so any one can imagine how we are enjoying the fruit of our labor, and we are carrying the air of "I am monarch of all I survey" if I do not look beyond the line of the fence-posts.

There are six of us in the family now, the oldest being fourteen years old and youngest three next July. All but one of our children were born in our own home, and all have grown up outside in the yard with the chickens, bees, weeds, and flowers, and they do grow like weeds under these conditions, being outdoors all day except on very bad days, when I have to drag them in. There has been nearly no sickness to speak of, owing to their manner of living outdoors. So just think how nice it is to have a home all paid for while children are small.

My oldest boy goes to high school next fall, and the older the children grow the more they cost; so there is a consolation in the thought we can do well by our children since we already have a home of our own.

All these years I had to be as saving as I could be, and I do all my work and sewing, so my hands are full; but there is a pleasure in that, and it is our aim to keep going up the ladder.

I just wrote this thinking it would help some of the readers wanting to own a home but who are not sure they can do it. May be some will profit by my experience.

MRS. NEILLIE.

After the above was in type I submitted a copy to our friend Neillie, and he gives us some additional facts as follows:

Mrs. Neillie deserves all you said about her and more. She has done all the managing, as I turn over to her my pay envelope, unopened, which has grown from \$1.50 a day to a yearly salary of \$1400. Perhaps I should tell you I have been working for the Forestry Department and Parks 17 years—3 years as gardener and 14 as a tree-warden, and as the city entomologist.

There are 5 children in the family—four boys and a girl. The oldest boy is 18. You never saw him, tho I stopped at your home September 16, when I

was taking him to the Ohio State University in Columbus—Mrs. Neillie and the little girl accompanying us in our machine. Mrs. Root saw him, and said you were away in Springfield. Mrs. N. and I wish to be remembered to Mrs. R. The boy has to earn half his expenses at the University. He is taking the general course at the College of Agriculture.

The big boy who sat with you in the machine on the trip to Wooster is Edison, named after Tom Edison. He will be 15 on the 19th of November, and is heavier than I am. Last night he was making a new wireless instrument-board to replace an old one he made last year. If he has any real aptitude for the study of electricity I think I will notify Mr. Edison that I named a baby after him nearly 15 years ago, and ask that he be taken into his laboratory; otherwise he goes to the Ohio State University. He is now in high school.

There were two other sons in the machine with you—Elmer, 9 years old, who can tell his older brother more about a Ford than they know, and Franklin, 7 years old.

Please tell Huber that we made Columbus in seven hours from Cleveland (actual running time), and that I think I can do it in 6 if not 5½ hours if I have no precious load like wife and children in the car.

The article Mrs. Neillie wrote was written four or five years ago. We swam out of that sea of debt some seven years ago, into it, buying the corner lot next to us.

You seem to think it a bit strange a deaf man can drive a car. There are several of us in this state who do, and one is reported to own and drive a *taxicab* in Toledo. Deaf people have a sort of "sensimeter" which is more developed than with hearing people, and which is *still* more perfectly developed with the blind. We notice any unusual jarring or loose vibration that ordinary people don't notice. The antenna of my "sensimeter" is always "on the job" on my car. I *look* after my car, keep my sight straight ahead, sparing five per cent of it for rear-sight mirror, and *do not take any chances*, and am all the more careful *because* I am deaf. However, I have "the other fellow" to reckon with, the same as Huber or any one else, and I *may* get hurt yet. I have driven motorcycles between 25,000 and 30,000 miles, and autos over 40,000, and no accidents at all yet.

Oh, yes! we are all happy here. We have books, the yard, the children, the car gives us all the country we can want, and I have a host of intelligent friends all over the city (including the police, to whom I "wave my hands") whom I acquired in the capacity of consulting tree "physician and surgeon," whom the Park Department sends out to advise people who ask for some one to look at their trees and plants. It is generally the cultured people who take enough interest in their plants to send for some one.

My friends number from the secretary of war down to the wives of the Great Lakes sailors.

Mrs. Neillie says I am a garrulous old man, and that I *must stop*; but I hope this letter will prove a little of a diversion for you.

Most fervently imploring God's blessing on you and Mrs. R., and praying that he will spare you to us for a long time yet, I am your friend,

Cleveland, O., Oct. 24.

CHAS. R. NEILLIE.

MILK AND HONEY FOR THE GREAT WIDE WORLD.

The following, clipped from the *Cleveland News* of Nov. 7, is about the best write-up for bees and honey from an out-

sider I have ever come across. In fact, some of us veteran beekeepers never knew or thought of some of the things mentioned, especially in the matter of "housekeeping" in the hive, and that the honeybee is a model housekeeper. Just one suggestion: If I am correct, bees do instinctively object to a dirty man; and if I am right about it a man with the fumes of whisky or beer on his breath would be *more* likely to be stung "at sight" than the one who has just come from the stable without being washed up.

D'YOU LIKE HONEY? BY EDNA K. WOOLEY.

The Honey Man sat down beside my desk and smiled at me.

Now, please don't draw any hasty conclusion. I'm calling him the Honey Man simply because he knows all about honey and its makers, the bees.

"Do you know," he began, "that there are never any multi-millionaires among the bees?"

"Indeed?" I politely responded.

"The fact is," he continued, "that the honeybee never reaps the reward of its labors. It's the saddest thing in a bee's life. A bee's life is short at best. It works so hard that its wings soon become frayed and inadequate for long flights. However, the bee works up to the last minute, and is never able to carry its last load of honey home.

"I wish you could see the inside of a beehive and understand it as I do. It's a regular city, with its officials, its sanitary squads, its police—everything about as we have it, only everything is so much better done than we do it. A beehive is the most sanitary spot on earth. Bees can't and won't stand dirt. Put a dirty honeycomb into a hive and in a couple of hours the bees will have that comb clean and actually glistening.

"Every bee has to go thru a course of thoro home and civic training before it is allowed to leave the hive to do outside work. For the first sixteen days of its life the bee does housework, you might say, and tends the babies. At the age of sixteen days it is considered mature and educated, and may go out into the world to live the fuller life."

"Bees are wonderful," I admitted. "I'm happy to say that I'm one of the few people that they don't sting."

The Honey Man laughed gently.

"Now, that is an old idea that ought to be exploded—that bees will sting some folks and not others," he remarked. "The fact is, you can handle bees at certain times and they'll be so busy thinking of something else that they won't sting. For instance, when they swarm they seldom sting.

"Bees distinguish everything according to odor. Possibly one person's odor may be so agreeable to the bees that they let him alone. The bee's sense of smell is so acute that it will scent what is imperceptible to human nostrils. Bees are known to each other by their odor. Every bee has its own colony odor, and no bee will be admitted into a hive unless it has the colony odor of that hive.

"A bee will sting where it is offended by an odor. A man who has been in the stable, we will say, may go direct to the apiary and be stung by the mildest bees there, while the same man, fresh from a bath and wearing clean clothes, could go about unharmed among the most vicious bees in the apiary."

"Tell me something," I asked. "Do the bees really make all the honeycomb, and why is extracted honey cheaper than comb honey?"

"Bees make all the honeycomb," he answered. "A satisfactory substitute has never been found.

You may be sure that you are getting absolutely pure honey when you buy it in the comb.

"In extracted honey there is, of course, a chance for adulteration, and while it may be as pure as comb honey it lacks just a little of the exquisite flavor of comb honey.

"Comb honey is more expensive because it takes the bees a long time to make the comb. It is a very expensive product of the bees. They don't like to fill the small frames which we give them, but we have a process by which they are compelled to do so before they pass on to the large permanent combs which they not only fill with honey but in which they raise their families. These large permanent combs are used again and again. When one is filled, a knife made for the purpose slices off the thin sealing of the cells, the comb is put into a machine which whirls it rapidly, and every bit of juice is extracted. Then this comb is returned to the hive.

"People seem to think all honey is a luxury," he went on. "Bulk for bulk, it may be more of a luxury than sugar; but considering how much richer, sweeter, and more digestible it is than sugar or any of the cane syrups, I should say that it would not be found more expensive. It should be used more in cooking. Remember, it's the purest and finest of direct nature products. I should say that of all other natural products it is equaled only in its many virtues by milk.

"Honey is one of the few sweets that is digested the moment it is taken into the stomach. It never sours on the stomach, never causes indigestion. You might say it is really a predigested food. It contains far more energy than sugar. It is an ideal food for old people and children. Our own children have never been given any sweets except honey. They have had free access to it always. The result is that our children have no bad stomachs, no unpleasant breath, and no decayed teeth as the result of eating too much of indigestible sweets.

"Did you ever try honey and milk on your cereal for breakfast?" he asked. "Now, sugar and cream combined may make an acid in the stomach. Honey and cream never do that. Take just about half as much honey as you would take sugar, on your morning cereal; pour over as much milk as you wish, and it's the surest cure I know for that morning grrouch!

"Use honey in place of sugar on all fruits served with cream and sugar, and you'll think life is one long poem."

"Could a woman keep bees in a city back yard?" I asked. "I could establish an apiary on the top of the *Leader-News* building and the bees would travel two and three miles to find the honey to bring home," he answered. "It might be rather dark-looking honey, because of all the smoke in Cleveland air, but it would be honey!"

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HIGH-PRESSURE GARDENING

GRAND RAPIDS LETTUCE GROWN UNDER GLASS,
AND WHAT HAS COME OF IT.

During the years since GLEANINGS was started I have exploited so many different things in the line of gardening, etc., that didn't "pan out" I have sometimes wondered why my good friends did not throw it up to me that my hobbies as a rule were, too many of them, "air castles"—German carp, the Gault raspberry, then some great blackberry of which I cannot remember the name, etc. Well, it often transpires that, while these things are a success in some particular locality, they do not succeed everywhere. I can thank the Lord, however, that many of the things I started have resulted in great and important industries. I want to tell you about one of them:

Almost thirty years ago I got a glimpse of the Grand Rapids lettuce grown in Grand Rapids, Mich. It was not called "Grand Rapids" lettuce then, for the world knew nothing about it. Some of our older readers will remember that, after I got just one glimpse of the *Eugene Davis* lettuce-greenhouse, I began bartering for half a pound of the seed which he said he had. First I offered him ten dollars. He shook his head. Then I went on to twenty, thirty, forty, and finally *fifty* dollars. You see I made up my mind that I was going to have that half-pound of seed, even if it cost a *hundred dollars*. He finally said that, if I was deter-

mined to have it, he hadn't the heart to charge more than at the rate of a hundred dollars a pound. Do some of you remember what I did with it? I gave each subscriber of GLEANINGS a little pinch, and went to growing it in my own greenhouse and writing it up with my characteristic enthusiasm. Grand Rapids lettuce is now cataloged by almost every seedsman in the world.

Several times recently I have had intimations from different sources to the effect that there was one particular locality in Ohio where Grand Rapids lettuce-greenhouses covered literally *acres* of land; and on the 13th of November it was my pleasure to get a glimpse of something like *fifty or sixty* acres, covered with glass, expressly for growing Grand Rapids lettuce. One man had about seventeen acres mostly devoted to this industry; but he begged me not to use his name nor locality more than to say Ohio. It would take a book, almost, to tell you what I saw and learned on that visit of two or three hours.

When I first got a glimpse by lantern-light of Eugene Davis' greenhouse filled with luxuriant lettuce I thought it was one of the brightest and most thrilling sights I ever beheld; and what I saw on this day brought back the old fever and enthusiasm. Oh how I did wish I could get down on my knees and help the boys *transplant lettuce!* I suppose, however, my enthusiasm would

not have lasted very long, for my old knees and back would demand straightening up every little while.

Well, a couple of these boys, perhaps twelve or fifteen years old, would plant seedlings so fast that one could hardly see them do it. There was just a quick dab of the finger, and a little morsel of dirt thrown over the roots, and it was done. They did not take any pains to stand the plants straight up. The plant itself lay flat on the ground; but in just a few hours, with the proper heat and moisture, and especially with a little sunlight, they straightened up of themselves. I was told that one of those boys had on a special occasion transplanted 22,000 *plants* in ten hours. The seedlings are raised in very rich black soil—I should say a mixture of about half muck and half of stable manure.

The sides of the bed were a wooden plank; and on the upper edge of this plank is a long strip of angle iron; and this strip of angle iron forms a track for neat little cars that carry stuff back and forth. In fact, the cars run so easily that one could give them a push and they would go away off in the distance to the end of the greenhouse. Stable manure is used everywhere, almost without stint. It comes by the carload from the large cities; and talking about carloads, our good friend said he handled the lettuce *only* by the carload. My first question was, "Where do the people live who want lettuce all winter long, by the carload after carload?" I suppose it goes mostly to the great cities. You know it has been pretty well demonstrated that *chickens* do not thrive unless they have green food as well as grain. And, by the way, your chickens will soon show you, if they have a chance, that *lettuce* suits them better than any other green food in the world. Well, it seems that people as well as chickens have begun to learn the value of lettuce as a form of green food; and I suppose our doctors will tell you that lettuce is one of the most *wholesome* products of the soil. It is *uncooked food*; and you know a great deal has been said about the importance of having at least a part of every meal uncooked—food straight from the hands of the great Father, without any artificial tinkering.

Overhead heating is used, particularly for growing lettuce; and the most desirable temperature seems to be about 45 at night and 55 in the daytime. The green fly is kept down by means of hydro-cyanic acid; and this reminds me of something. These lettuce-growers, many of them, grow *cucumbers* also. Of course the cucumbers require

a very much higher temperature; and we saw some beautiful cucumbers trained on a wire trellis, in full bloom. For the cucumber-house they have one or two colonies of bees, the number depending on the size of the house; and it was to investigate this part of their business that our party went out on this expedition. Of course there is no need of any *bees* in *lettuce-greenhouses*; but when they fumigate the cucumber-house the bees have to be removed and set out, until every trace of the terribly poisonous gas is gone. The same greenhouses also grow tomatoes largely; and right in the middle of November they are gathering tomatoes grown under glass, and shipping them by the carload. The tomato-houses need no bees. Let us now go back to where I started. When I was scattering Grand Rapids lettuce seed, not only all over our nation but away across the water, little did I know the outcome.

One of the greenhouses we visited, that went away up in the center toward fifty feet in height, and covered an acre of ground, cost something like \$50,000. I do not remember now how much money there is in a carload of lettuce; but it is probably away up. Large numbers of men and boys are employed in this industry, and very likely women and girls also; and they have a comfortable and pleasant place to work all winter long when there are storms and blizzards outside. One reason why I recommended greenhouse work thirty and forty years ago is that it affords such a nice pleasant place for work during stormy weather.

On page 1183 I have told you the story of the outcome of one single individual who caught the fever by reading *GLEANINGS* about gardening under glass—or, if you choose, "support a family on a quarter of an acre of ground," as we have it in our tomato-book. By the way, in closing let me tell you that before I dictated this article I hunted up the description and directions for cultivating lettuce as given in our book "What to Do, and How to be Happy While Doing it." In that book our friend Eugene Davis, who first sold me that half-pound of lettuce seed, answers questions and tells us all he can about how to grow Grand Rapids lettuce. To Eugene Davis is due the credit of first starting this great industry, while I only gave it its name, Grand Rapids, and scattered it by pinches far and wide to the good people who read *GLEANINGS*. I think that this one article in the book mentioned is abundantly worth the price of it to anybody who is in any way interested in growing lettuce.

OUR FLORIDA GARDEN.

When I first took a look at it, Nov. 17, I felt a good deal discouraged, for my beautiful beds of corn and velvet beans that I left the last of April were a wilderness of great tall weeds, sand-burrs, dried-up cornstalks, and velvet beans. I had been *told* the latter would crowd out everything else, even weeds; but I never before realized what a "pusher" the velvet bean is. Our experiment station advised me to plant corn with beans every third row; but they didn't all come up, altho what did come evidently recognized the opportunity. "They don't seem to relish bearing *beans* unless they can climb up on something, so they first mounted the tall corn and then proceeded to load down stalks with great clusters of pods until the corn fell flat on the ground, then they went for the poultry-netting fences, festooned *them* with bunches of pods, but, apparently still unsatisfied, grasped the pine-trees on the other side of the fence, and went up 20 and *even* 30 feet.

I said to Wesley, "Why, Wesley, that vine cannot be velvet beans away up there?"

"Yes, it is, Mr. Root; don't you see the great bunches of green pods stringing along clear away up?"

And I had to admit it. You see the ground was pretty well fertilized for the potatoes, and I also invested in the "nitro culture" when I planted them; and, altho the plants looked sickly and discouraged when I left in April, they must have got "down to business" later.

As we had moved the chickens all away, I told Wesley to plant corn and velvet beans all thru the chicken-yards; and the result was, when I arrived not a gate could be opened, and even the houses were covered. Bunches of beans were hanging from the eaves and everywhere else. You may recall that I put netting overhead in one yard, to keep out hawks. Well, this yard just took their fancy. They roofed it over and dropped bunches of pods down thru the netting. In places in the garden the vines are knee-deep, and the ground under them is so mellow with the decaying black mold it looks as if it must grow potatoes or anything else. How about the corn? Well, Wesley had gathered a heaping barrel; but it was so much trouble to find it when the vines had broken the corn down that I gathered a big armful of beautiful ears after I got here. The summer has been so dry the corn was in perfect condition except that rats or some other animal had shelled part or all of some of the finest ears. In

consequence of the almost unprecedented drouth many of my choice plants and trees have died; but the dry hot weather seems just to suit the velvet bean. Like all legumes, the vines and beans also are fine for feeding stock, and I believe they are used to some extent for human food. We have tried them a little, but do not fancy them much so far.

Another plant that seems to rejoice in dry hot weather is the roselle I have repeatedly spoken of. Our plants were, once more, "great trees," and we are supplying fruit to neighbors far and near. Stewed and sweetened with honey from *our own* hive, I verily believe I enjoy them as much as I did peaches and cream a short time ago in Ohio. If well started in a greenhouse I feel sure they could be made to fruit in the North. We are busy planting potatoes; but there seems to be trouble about getting seed that will sprout promptly. Red Triumph, planted two weeks ago, is not showing yet. Seventy-five cents a peck is the price, and many think they will soon be a *dollar a peck*.

With the large amount of rotting bean-vines, cornstalks, and big weeds Wesley is spading under, there seems a good prospect for potatoes if we have rain enough. We have some very fine sweet potatoes, but *they* bring only a dollar a *bushel*.

As usual, while eggs are 50 cts. a dozen our 40 full-grown hens are laying very little; but we are trying everything for feed in order to get them started.

Peas, beans, Bantam corn, radishes, and lettuce are up and growing finely that were planted about two weeks ago. Spineless cactus has made a fair growth during the summer in spite of weeds.

FIRST NEW POTATOES FROM FLORIDA.

The Jacksonville *Times-Union* says:

"What is believed will be the first full carload of new fall-crop potatoes to leave Florida this season was shipped from the celery-farm siding north of Crystal Springs, Wednesday," says the *Manatee Record*. "Almost all of the potatoes will grade as number one, fancy, and they are bringing a fancy price. The price paid was \$2.71 per hamper at the car." The *Record* says that these potatoes were planted in September, and will pay the growers handsomely. The wonder is that more potatoes are not planted for the fall crop, as the demand is now greater than even in the early spring. From the planting to digging, the time was seventy days. Great is Florida, and her wonderful climate and soil!

SWEET CLOVER; DOES IT EVER BLOSSOM THE FIRST YEAR?

In my experiments with white sweet clover (*Melilotus alba*) during the years past, I think I have several times seen an

occasional stalk that would blossom the first year. The matter was called to mind by the following:

A field of *Melilotus alba* sown here last spring bloomed profusely when about four feet high. I enclose a sample, and ask the cause if you know of any parallel case. I have never known it to bloom the first year.

Earle, Ark., Sept. 26.

C. W. RIGGS.

To the above, Mr. Calvert replies as follows:

Mr. C. W. Riggs:—I have yours of the 26th, with sample of what you say is *Melilotus alba*. Where seed is sown as early as July or August, it usually makes sufficient growth that year to produce bloom the year following. I do not recall a case where it would bloom the same year if sown in the spring, altho *Melilotus indica*, the annual yellow, does bloom the year sown.

Medina, O., Sept. 29.

J. T. CALVERT.

Later on came the following:

The seed of the plant I sent you, supposed to be *Melilotus alba*, was sown some time last April, so the party who sowed it told me. I was particular to ask if he sowed it the fall before or the spring before last. Both he and his women folks declared that it was sown last spring, grew to about four feet in height, when it bloomed profusely, the field being covered with a nice white bloom. I thought it might be a yellow annual, so I went to see and found the white bloom in various places. The party had cut it several times and pastured it most of the summer—had hogs on it, pastured heavy. You, of course, have seen the plant in its second year, when it has been pastured heavily, struggling to perpetuate itself. This is the condition in which I saw it. The party was not satisfied with it, and said he was going to plow it up and put in alfalfa. I begged him not to do so until I had communicated with you. I never saw or heard of anything like it in my experience with white sweet clover.

Greenland, Ark., Oct. 4.

C. W. RIGGS.

Neither of the letters tells us definitely the date at which the bloom appeared. The first letter is dated, you will notice, Sept. 26. Perhaps the locality, Arkansas, has something to do with it; but if the seed was sown only the last of April, the last of September would give just five months for the plant to grow 4 ft. high and bloom profusely as he states. The question arises right here, is this a special strain of sweet clover because it blossoms so early, or is it because the climate and environment down in Washington Co., Ark., are so particularly favorable? Will the friends who are growing sweet clover, especially those in the South, tell us if they have had any like experience? If they have not, some measures should be taken to secure seed from this particular field, as it would seem to be quite desirable to get a strain of sweet clover that will give a yield of honey the first season.

THE PRICKLY PEAR OF AUSTRALIA — IS IT SUCH A TERRIBLE PEST, AFTER ALL?

When I published the article referred to below, I felt sure it was an extreme state-

ment in regard to the prickly pear, and I rather expected we should get something on the other side. Well, below is a letter from one of our friends in the same locality:

Mr. Root:—I see by the June 15th issue, p. 506, that our friend W. Mertons is troubled about the prickly pear. He says he has 130 acres of land, and it took five years to clear 30 acres. I know plenty of men to clear nearly that much in one year.

If you want to keep the land clear you must plow it and put in a crop. Corn is a good crop, as prickly pear is a plant that requires sun and air; and as for seeds, it would take at least two years before they would be large enough to be noticeable. So you could soon settle them with a good scarifier. He says the land costs from 10 to 50 dollars. It is a long way from that, as you can have the prickly-pear farms by applying for them. The only condition is that you have to clear them; then you get your title rights, and labor is not so high as he says, as there are plenty willing to work for \$5.00 a week and board, and a place to sleep.

I know several farmers saved the lives of their cattle thru the drouth by boiling the pear and mixing it with chaff; and there are hundreds of pigs fattened with boiled prickly pear and corn. A friend of mine took up one of these prickly-pear farms. He took out a lot of pigs and 20 hives of bees. As soon as he cleared a patch he put in a patch of corn, and fattened the pigs with boiled pears and corn also; and he got a large crop of extracted honey from his bees. The honey is so transparent you can see thru the sides of the bottle as easily with the honey in it as you could if it were empty; and it is a good thick liquid. The pears have a large cream-colored flower, and the fruit is bright-red and pear-shaped. It makes a very good jelly, and it is nice to eat like fruit, as it is sweet, and comes in very handy when there is no other about. In fact, there are many children that get hardly any other fruit, as it is too dear to buy. Peaches, early sorts, bring 5 cts. each, and apples 4 cts.; apricots, 2 cts., and plums 2 cts.

As for the pear spreading at the rate of one million acres, it is what we call "putting it on thick," and trying to deter people from coming out here. At the rate the pear is destroyed, fed to stock, and used in various ways, there will not be much left. It is boiled, and the liquid is mixed with lime or whiting, and it makes a good whitewash. You cannot rub it off when dry, and I hear they are making petrol out of it.

A pear is full of very fine thorns on the young leaves; but when boiled they collapse and are harmless. The old stems have large thorns; but when they use them they make a fire on them with grass or small brush, and that is the end of the thorns. The leaves are about 3 by 4 inches on the young plants, and the older about 6 by 8 inches.

On the whole, the prickly pear is a blessing in disguise.

WALTER LINCOLN.

Toowoomba, Queensland, Aus., Aug. 20.

From the above we learn that even the Australian prickly pear has its uses. I am glad to know that it yields honey, and honey almost if not quite water-white and of excellent quality. If I understand it, it is desirable to put in some cultivated crop like corn or potatoes after the prickly pear is turned under. I know by experience that it takes quite a long time for the seeds to germinate, and I can hardly think it is a worse pest than some weeds we have to contend with here in the United States.

HEALTH NOTES

DEAF PEOPLE—WHAT HAS SCIENCE DONE FOR THEM?

Can any one estimate what spectacles have done for the sight? Why, it seems to me I could hardly live without the help of my eye-glasses; and yet I suppose people got along after a fashion before lenses were invented. Well, for years past I have been wondering why something could not be done for the ears (or to a certain extent at least) what science has done for the eyes. Various contrivances claim to do this very thing. On page 868, Dec. 1, 1913, I gave a lengthy account of my experiments with the acousticon, ear-phone, ear-trumpet, artificial ear-drums, etc.; and I concluded by saying that I received more benefit with my bare hand placed back of the ear than with any contrivance I could find advertised or get hold of. Another thing in favor of this method is that you always find your hand "on hand"—always with you; whereas your ear-trumpet or ear-drum might be somewhere else when you want it most. Well, during the three years that are past I have still been answering advertisements and testing all the advertised appliances. A year ago I got some little ear-drums from a company in Detroit. For a time I thought I could hear a little better with the ear-drums; but after careful and repeated experiments I decided they were of no benefit to *me* whatever. I emphasize the word *me* because I have had satisfactory evidence showing that they are a benefit to *some* people. Perhaps I should add, however, that this evidence has always been in print. I have never met and *talked with* any deaf person who felt, after a lengthy trial, that he had received any benefit from artificial drums. Perhaps you may not be aware that the vendors of helps for hearing have a list of the names of deaf people. I do not know how they get them; but I am getting circulars continually. Even when in my Florida home as well as here in Medina I get circulars from the Wilson Ear-drum Co., of Louisville, Ky. The price of their ear-drums is \$5.00. I told them I was willing to test their device, but added that, so far as I could learn, if no benefit was received the whole \$5.00 was wasted. They made no reply except to send a lot of testimonials; and a short time ago they sent me quite a little book of testimonials praising in extravagant terms their ear-drums; and they said these testimonials were all of recent date, and that I might write to any one of them, tho they were scattered

all over the United States. Finally I wrote as follows:

Wilson Ear Drum Company:—In reply to yours of a recent date, I enclose \$5.00. That so many people have been benefited is a big showing, of course; but I can find no word anywhere in regard to the number that are not benefited at all. I presume there must be some, and may be a great number of them. Wouldn't it be honest to say, "Quite a few receive no benefit whatever"? It would hurt your trade somewhat, no doubt; but isn't the honest truth worth more than dollars?

I am nearly 77 years old. I have used some ear-drums made in Detroit. I thought at one time they were of a little benefit, but later I could see no difference. If I receive any benefit whatever I will gladly publish it in our journal. If I do not, I will also publish it, because I think it's due the great public to know that *not* everybody is helped. If you don't object, I wish you would tell me about what per cent of your customers fail to receive any benefit whatever. A. I. ROOT.

The drums came promptly, and with them the following letter:

Mr. A. I. Root:—Your letter with check for \$5.00 has just been received, and in compliance with your request we are sending under separate cover by mail today a complete set of our ear-drums with the hope that you will be greatly benefited by their use. Full instructions for using the drums will be found in the little box; and after reading the same carefully you should have no difficulty in inserting and removing them at will.

Should it be necessary to exchange you will have the privilege of doing so free of charge at any time.

We wish to state that it would be impossible for us to know how many people we have benefited and how many we have not benefited; but we take it for granted people are benefited when they write and order new sets, and some write and state that their only regret is that they did not get the drums many years sooner. We wish to assure you that we will do everything in our power to assist you in getting the best results by making any change necessary. WILSON EAR DRUM CO.

Louisville, Ky., Sept. 14.

These little rubber drums are certainly in some respects an improvement over the ones I received from Detroit, and I followed directions most carefully with much faith and enthusiasm; but when tested by the ticking of the clock I could perceive no benefit. If anything I could hear a little better *without* the drum.

Let me mention another thing in closing. The directions for using the ear-drums include washing out the wax and accumulations most thoroly with castile soap and water, even using antiseptic cotton to remove all accumulations. If the ear-wax has become so hard that even the soap and water do not get it away, the directions are to apply sweet oil until the hard cakes are softened up, and the ear can be thoroly cleansed. Now, this treatment alone will improve the hearing with most people. A

doctor of my acquaintance has given great relief, especially in one case, by a thoro cleansing of the ear. I do think the ear-drum people should give at least a few testimonials from those who, like myself, have received no benefit from the drums. Perhaps that would not be "business;" may be it would not be the common kind of business. Years ago they used to call me a sort of fanatic who had a habit of mixing religion with business; and I think the ear-drum people and every other business man, for that matter, would be benefited in the

end by being honest enough to say there were also quite a number of people who received *no* benefit. It might, however, occur to some stupid people like myself that in that case they ought to give back the five dollars, or at least a part of it.

Oh, yes! there is one thing more. These little ear-drums that cost \$5.00 it does not seem to me ought to cost over five cents—at least where made in quantities. If weighed on the scales they probably would weigh about as much as a bumble-bee's wing.

TEMPERANCE

"GOD'S KINGDOM COMING" TO OHIO.

The temperance forces are much gratified in winning four states for constitutional prohibition: Michigan, Montana, Nebraska, and South Dakota; two states for statutory prohibition: Utah and Florida; the winning of the territory of Alaska, every municipality in it going dry; the overwhelming defeat of wet proposals submitted in the five dry states of Oregon, Washington, Colorado, Arkansas, and Arizona. In view of the foregoing splendid victories it behooves the temperance people of Ohio to begin at once to plan the battle in our own state.

OHIO ANTI-SALOON LEAGUE.

Columbus, O., Nov. 14.

ANOTHER BIG DAILY GONE DRY.

We clip the following from the *New Republic*:

The Washington *Evening Star*, one of the leading newspapers of that city, and recognized as one of the great dailies of the country, has put a ban on liquor advertisements. No longer will this great medium carry any sort of advertising which boosts alcoholic beverages.

Announcement to this effect is carried on the first page of the *Star*. It says:

"In deference to the wishes of its readers, the *Star* will not print advertisements of intoxicating liquors hereafter."

ONE HUNDRED MILLION DOLLARS LESS FOR
DRINK IN 12 MONTHS.

We clip the following from the *Farm and Fireside*. Read it over carefully and consider; then read it over again.

BOOZE BILL DWINDLING.

Cold figures from an unprejudiced source are what really furnish an authentic verdict as to whether increase of dry territory decreases the consumption of alcoholic drinks. The last government fiscal report, including the first half of 1916, shows that there were 2.7 gallons less of intoxicants per capita consumed than in the preceding year. One hundred million dollars less was paid out for drink in twelve months by the American people than during the previous year.

In the consumption of beer there was a decrease of ten gallons for each family. Even with this reduction, Uncle Sam's records show there was a total expenditure for intoxicants in twelve months of

over a billion and a half dollars—seventy-five dollars for each family.

A comparison of the money going into the building of churches and liquor-making plants is an interesting side light on the question. In 1905, for every dollar expended for new church buildings there were \$2.80 put into new breweries and distilleries. In 1915, for every dollar put into new liquor-making plants there were \$38.20 put into building new churches in this country. There were \$14,000,000 less invested in the construction of breweries and distilleries in the past ten years than in the decade preceding 1905.

It is now evident that John Barleycorn is mortally hit; but he is working his publicity bureau as never before, to show he is still in the game and that when a state goes dry it becomes wetter!

BELGIAN CHILDREN STARVING, AND 12,000
TONS OF BARLEY FURNISHED THE BEL-
GIAN BREWERS.

We clip the following from the *Christian Herald*:

Alcohol well nigh wrecked Germany's forty years of preparedness. In spite of the cry of starving Belgian babes and little children hungry for bread, the Belgian government demands monthly imports of twelve thousand tons of barley for the Belgian Brewers' Federation.

Is it possible that there is no power on earth or up in heaven to give the barley to the starving babies and children instead of using it to manufacture beer?

DOES PROHIBITION PROHIBIT?

The following clipping comes from the *Norfolk Ledger-Dispatch* and reads as follows:

Norfolk is unmistakably dry. King Alcohol and his court which for 306 years have held sway in this city have been completely ousted. The great wave of prohibition which has swept thru the Old Dominion (and, indeed, the entire South) is surely in force in this city. For the first time in the memory of the oldest member of the police department and of the oldest court attache the docket in the mill of justice was this morning free from any charge of drunk. When the clock struck the midnight hour that ushered in the fatal day that banished liquor the ax fell with great force, and since that time there

has been no liquor sold. Yesterday the few dealers who had stock still on hand shipped it out of the state. The amount shipped was small.

For several weeks (in fact months) past, the police-court docket has been crowded with a long list of drunks who were holding what they termed their final celebration. This morning Clerk Billy Stevens in the Mill of Justice called charge after charge in practically all classes of law violation but drunk. The court which is usually held up by innumerable drunks was free from the pests this morning; and, while the docket was large, the session was snappy and short.

"Guess we are about thru with the drunks," said Justice Arnold at the close of the session. "I never saw so many on the dockets as we have had in the past few weeks."

ONE DRUNK IN RICHMOND.

RICHMOND, Va., Nov. 2.—Business for the police department suffered a tremendous slump yesterday, the records for the day having shown that the number of arrests had fallen off to a mere shadow of former days, and that the effects of prohibition were early discernible in the absence of the usual long list of "drunks" on the police blotter. Up to 1 o'clock this morning only one member of the body politic of Richmond slumbered behind the bars dreaming of his trial this morning before Justice Crutchfield.

"NO MONEY TO RUN THE CITIES."

On page 992, Oct. 15, I gave a list of the cities that were having financial trouble, and also a list of cities that voted dry, not any of them crying "bankruptcy." But it seems the wets are making so much ado about the terrible state of the finances in Denver that the *Kansas City Star* sent a reporter to find out exactly the condition, and below is a brief clipping from his report:

Even the old cry of no money to run the city is given a hard wallop. Auditor Markley reported today that 94 per cent of all 1916 tax moneys are in the treasury, and many delinquent taxes are being paid. September was \$40,000 better than September, 1915, in collections. The city redeemed \$636,500 in improvement bonds and has issued only \$94,800 this year.

POLICE FORCE IS 100 LESS, BUT STILL ABLE TO WORK EFFICIENTLY.

A good friend sends us a copy of the *Toronto Globe* for Oct. 27. He says:

Dear Mr. Root:—The enclosed clipping is self-explanatory. Coming from such an unbiased authority you can have your own ideas as to how prohibition is working in the largest city in the world under such an ordinance. The clipping is from the *Toronto Globe*, the most influential paper published in Canada. J. L. BYER.

Markham, Ont., Oct. 27.

We have not room for the whole of a marked article in it, but below is the heading:

Prohibition is Doing Big Work.

Chief of Police Grasset Sees Vast Change.

Men Take Money Home.

Police is 100 Less, and Able to Do Work Efficiently—Storekeepers Getting the Money Saved—Decrease in Arrests.

The paper goes on to tell of drunken sots who are now at work and taking their money home to their families instead of spending their time lounging around saloons. Husbands go to market with their wives, and carry home the purchases, etc. I wonder if our large cities here in the United States would not do well to "sit up and take notice." In Cleveland there is a continual plea for more policemen; and the workhouses and city prisons are so overcrowded that they are talking about larger buildings. But not a word is said in any of our dailies in regard to *closing the saloons* instead of building bigger jails and workhouses. When I can find a Cleveland daily that has the courage to reject liquor advertisements, and suggest closing the saloons as a means of getting a revenue, I am going to swing my hat and thank God.

THE WHITE SHOES, WHITE DRESS, AND BLUE SASH.

I went to hear Wm. Sunday yesterday in his talk to the Ypsilanti students, more than a thousand of them, at the Normal, and then we went on to Ann Arbor by motor car. The Coliseum, which is said to seat 13,000, was packed, and we heard as best we could. I had an opportunity to distribute all of the leaflets that I had with me. Henry Ford sent to me a large package. He is giving his life and what he has accumulated to worldwide peace.

I was delighted with your temperance talk in the last issue of GLEANINGS; and I wish to say right here that I have the leaflet "White Shoes, White Dresses, and a Blue Sash" in the original. I have seen the woman and heard her talk. She took an active part in the first convention called by the Crusade women of Ohio in Cincinnati. I do not see why her name was not mentioned in the leaflet. It was Mrs. Abbie Leavitt. Her husband, Rev. S. K. Leavitt, was a Baptist minister in Cincinnati. It really was a true story, and she was gone from her home but about two hours. Truly the Spirit of the Lord was with us in those days; and when his name and power are acknowledged sufficiently we shall see victory over evil. We must depend on him and give him the honor and praise, to whom it is due, before success can crown our efforts.

I do wish many more could have heard Mrs. Leavitt tell of their work in Cincinnati, when 43 of the best women in the city were arrested for blockading the sidewalk, when they knelt in prayer on the pavement in front of a saloon. In reporting it she said something like this:

"You have heard of the man who drew an elephant in a lottery, and did not know what to do with it. The mayor of Cincinnati looked just like that man. The pavement was 18 feet wide, and we occupied about 30 inches. I was leader that day, and gave out the hymn 'Rock of Ages,' when a policeman laid his hand on my shoulder and said, 'Mrs. Leavitt, you are under arrest.' 'All right,' said I. 'Let me hide myself in thee.' Then we prayed for that policeman and for the others, and for the crowd. We tried the patience of that policeman a little, for our service lasted 60 minutes. Some shouted, some cried, but all were happy; and then we arose and walked in an orderly manner, two by two, about two miles to the station house."

RHODA C. W. DERBYSHIRE.

Ypsilanti, Mich., Oct. 24.

Index to Gleanings in Bee Culture

Volume XLIV

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

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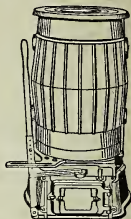
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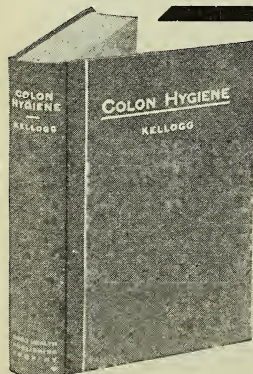
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FOR SALE.—2 sows and 3 boars 2 months old, choice Duroc-Jersey pigs, \$10.00 each, f. o. b. here. Papers furnished.
Marshal Rankin, Brady, Tex.

T supers, extracting-supers, metal-top covers, all new, in flat; Root two-frame extractor. Want Honey. Goldenrod Apiary, Box 582, Lenox, Iowa. 65066

FOR SALE.—Corn, car lots, also hay and straw, few cars good clover mixed hay, excellent dairy feed. Write or wire for terms and prices.
S. H. Burton, Washington, Indiana.

Good second-hand 60-lb. cans, 2 cans to the case, 30 cts. per case, in lots of 10 cases or less. In lots of 25 cases or more, 25 cts. per case. These prices are f. o. b. Cincinnati.
C. H. W. Weber & Co., 2146-2148 Central Ave., Cincinnati, O.

THE ROOT CANADIAN HOUSE.—54-56 Wolseley St., Toronto, Ont., (note new address). Full line of Root's famous goods; also made-in-Canada goods. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

PATENTS

Patents secured or all fees returned. Fortunes made by clients. Patents advertised free. Send data for actual free search. Books free. Credit given.
E. E. Vrooman & Co., 834 F, Wash., D. C.

POULTRY

S. C. Brown Leghorns, good ones. Special cockerel sale. Circular.
H. M. Moyer, Boyertown, Pa., Rt. 3.

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry, for pleasure or profit; four months for 10 cents. Poultry Advocate, Dept. 56, Syracuse, N. Y.

WANTS AND EXCHANGES

WANTED.—For spring delivery, 600 colonies of pure Italian bees. Write Lewis H. Furgason, Box 108, Windham, N. Y.

WANTED.—To sell an interest in the bee business to some honest ambitious young man who wishes to go into the business in a large way in as good a locality as there is in New York State. Do not write unless you mean business.
The M. C. Silsbee Co., Rt. 3, Cohocton, N. Y.

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1916. Our catalog and price list will be mailed to you free. Order early and get the discounts.

C. E. Shriver, Boise, Idaho.

REAL ESTATE

FOR SALE.—My home in Redlands, Cal. Will include bees if desired.

P. C. Chadwick, Redlands, Cal.

PROFITABLE LITTLE FARMS IN VALLEY OF VIRGINIA, 5 and 10 acre tracts, \$250 and up. Good fruit and farming country. Send for literature now. F. H. LaBaume, Agr. Agt. N. & W. Ry., 246 Arcade Bldg., Roanoke, Va.

A small farm in California will make you more money with less work. You will live longer and better. Delightful climate. Rich soil. Hospitable neighbors. Good roads, schools, and churches. Write for our San Joaquin Valley illustrated folders free.

C. L. Seagraves, Industrial Commissioner A. T. & S. F. R'y, 1934 R'y Exchange, Chicago.

BEEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, 1159 De Wolf St., Vincennes, Ind.

Well-bred bees and queens. Hives and supplies. J. H. M. Cook, 84 Cortlandt St., New York.

Fine Italian queens and bees. Send for our 1917 calendar, free.

A. E. Crandall & Son, Berlin, Conn.

My choice northern-bred Italian queens are hardy, and will please you. Orders booked now for spring delivery. Free circular. L. L. Barber, Lowville, N. Y.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price \$1; 6 for \$5. Wm. S. Barnett, Barnetts, Va.

FOR SALE.—80 colonies of fine bees at Tularosa, N. M.; good location; good place to live, because owner deceased. Address N. B. DeWitt, care of E. P. & S. W. Ry., Douglas, Ariz.

FOR SALE.—Italian bees, 1 lb. with queen, \$2.25; one-frame with queen, \$2.00. Queens, 75 cts. each. Safe delivery guaranteed; 30-page catalog with beginners' outfit for stamp. The Deroy Taylor Co., Newark, N. Y. (formerly Lyons).

My bright Italian queens will be ready to ship April 1, at 60 cts. each; virgin queens, 30 cts. Send for price list of queens, bees by the pound and nucleus. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

Phelps' Golden Italian Queens combine the qualities you want. They are great honey-gatherers, beautiful and gentle. Mated, \$1.00; 6, \$5.00; tested, \$3.00; breeders, \$5.00 and \$10.00. C. W. Phelps & Sons, Wilcox St., Binghamton, N. Y.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; each, \$1.00; 6, \$5.00; tested, \$2.00; breeders, \$5.00 to \$10.00.

J. B. Brockwell, Barnetts, Va.

Queens for queenening. Best on market. One untested, \$1.50; 12, \$12.00; one tested, \$2.00; 12, \$18.00; one select tested, \$3.00; 12, \$24.00. Special low price on 50 or more. Write. Safe delivery and satisfaction guaranteed. The J. E. Marchant Bee and Honey Co., Canton, Ohio.

250 colonies of bees for sale.

G. F. Wilson, 829 Bross St., Longmont, Colo.

QUEENS.—Improved three-banded Italians, bred for business, June 1 to Nov. 15, untested queens, 75 cts. each; dozen, \$8.00; select, \$1.00; dozen, \$10.00; tested queens, \$1.25 each; dozen, \$12.00. Safe arrival and satisfaction guaranteed.

H. C. Clemons, Rt. 3, Williamstown, Ky.

TENNESSEE-BRED QUEENS.—My three-band strain that has given such universal satisfaction for over 40 years. Orders filled promptly or money returned by first mail. 1000 nuclei in use. Tested, in June, \$1.75; untested, \$1.00; in July, \$1.50 and 75 cts. Postal brings circular.

John M. Davis, Spring Hill, Tenn.

SITUATIONS WANTED

WANTED.—Position in an apiary in the South, Southwest, or West. Fred E. Osborne, Ahern, Florida.

WANTED.—Position by expert in tropical apiculture. Will go to any part of the world, but prefer an English-speaking country. Address Tropical Apiarist, care Dadant & Sons, Hamilton, Ill.

HELP WANTED

WANTED.—Experienced beeman familiar with Rocky Mountain conditions to handle bees on shares. Can offer good proposition. Write with details of experience, etc. A. H. Dunn, Fort Collins, Colo.

Special Notices by A. I. Root

GOOD BOOKS AT A BARGAIN

Talks on Manures, by Joseph Harris—a \$1.50 book now offered at 75 cts.

The Dollar Hen—a \$1.00 book that had a large sale, which we now offer at 75 cts.

The New Rhubarb Culture—a 50-cent book which we now offer at 35 cts.

Title Drainage, by W. I. Chamberlain; recently revised and brought up to date; a 50-cent book which we now offer for 40 cts., postpaid.

Practical Cement Work. An elementary treatise on cement construction. The way cement is rapidly taking the place of stone, brick, and lumber, and the way almost everybody is getting to handle it more or less, makes it exceedingly important to have a reliable handbook for the people at large. This book has 110 pages, and the regular price is 50 cts. Instead of 50 cts. you may have it for just 15 cts. as long as the 11 copies last which we still have on hand.

"Letters from an Old Farmer to his Son." This book was put out in 1914, and was advertised to be clubbed with GLEANINGS about a year ago. The book (by W. R. Lighton, author of "Happy Hollow Farm") contains many valuable and praiseworthy suggestions. It is a dollar book; but as we have only eight copies left you may have them for 50 cts. each postpaid.

Tomato Culture—a 40-cent book. This book has also gone thru several editions. The last part of it is by A. I. Root, and is devoted chiefly to the matter of supporting a family on one-fourth of an acre of ground. It is also devoted largely to gardening under glass. The price of the book is 40 cts.; but as we have quite a stock on hand we offer it for 25 cts. postpaid.

Last, but not least, the book "What to Do and How to be Happy While Doing It." See notices of this book under Special Notices in our issue for May 15 last. The book has been sold for years at 65 cts., bound in cloth; paper, 40 cts. We have reduced the price to 25 cts. for the cloth-bound copy and 15 cts. for the paper. For extended notices of the above books, see Special Notices in our issues for May 15, June 1, and June 15, 1916.

TRADE NOTES

In GLEANINGS for Nov. 15 we announced a clubbing arrangement of the book "Gardenette" with GLEANINGS. In that announcement we said that we could offer the paper edition together with GLEANINGS for one year for \$1.40, and that the paper edition alone sold for 60c. We have since received notice from the publishers of the book that the paper edition is out of print and can no longer be supplied. Therefore, it is only the larger and later edition that we can offer clubbed with GLEANINGS. The price is \$1.75 for both.

HIGHER PRICES ON TIN CANS AND PAILS.

The market price of tinplate today is double what it was a year ago; and the prices quoted us where we have been able to get quotations at all on tin cans and pails are almost double what we were asked a year ago. In this situation we must advance still further the price on tin cans and pails. Till further notice we quote as follows:

Box of 1 5-gallon can, 68c; 10 boxes, \$6.50.
Box of 2 5-gallon cans, \$1.15; 10 boxes, \$11.00.
Box of 10 1-gallon cans, \$2.00; 10 boxes, \$19.00.
Box of 12 1/2-gallon cans, \$2.00; 10 boxes, \$19.00.
Box of 24 1/4-gallon cans, \$3.00; 10 boxes, \$29.00.
Crate of 100 one-gallon cans, \$16.00.
Crate of 100 1/2-gallon cans, \$13.00.
Crate of 100 3/4-gallon cans, \$13.00.
2-lb. friction-top can, crate of 500, \$18.00; case of 24, \$1.15.
2 1/2-lb. friction-top can, crate of 462, \$18.00; case of 24, \$1.20.
3-lb. friction-top can, crate of 420, \$18.50; case of 24, \$1.30.
5-lb. friction-top pail, crate of 200, \$15.00; 50, \$4.00; 12, \$1.10.
10-lb. friction-top pail, crate of 100, \$11.00; 50, \$5.75; 6, 85c.

We will accept a limited amount of orders for shipment from Medina before Jan. 1 for 60-lb. cans, 2 in a case, at 95 cts.; 10 cases, \$9.00.

Manufacturers of tinware are dependent on tinplate makers for their raw material, and predict still higher prices next year.

CATALOG FOR 1917.

The forms for printing our catalog for 1917 are complete, and we expect to have catalogs ready for mailing early in January. The catalogs in use the past year are about all used up, and many of the prices in them are no longer good because of the numerous changes which we have been obliged to make during the year. If you cannot wait till you receive our new catalog, send us a list of the supplies you want prices on and we will quote you.

From general market conditions now prevailing we anticipate that the prices in the catalog we are now putting out will have to be advanced before many months more radically than the advances which have taken place the past year. Lumber on new contracts is costing ten to fifteen per cent more than former prices, and metal prices are still going up. While we have tried to cover our requirements for the season ahead we have already booked large advance orders; and when we have to begin using higher-priced material we shall be compelled to increase our selling prices to make up for the increased cost. The prudent beekeeper who knows pretty well what he is going to need the coming season will be acting wisely in our judgment by placing his order early while the goods are available, and before further advances occur. In some lines of material it is not so much a question of price as it is being able to get the stuff at all when needed at any price you may be willing to pay. It is very largely the greatly increased demand with a somewhat restricted supply which is keeping prices on the up grade.

LOWER RATES ON COMB HONEY.

We have received a supplement to the Western Classification, effective Jan. 25, 1917, in which we find an item changing the rates on comb honey. In cases without carriers the rate will be double first class. In cases with or without glass fronts pack-

ed two or more cases in boxes or crates, with not less than four inches of cushioning material underneath, and marked on top "Fragile, this side up," the rate will be first class. This is the result of concerted effort on the part of beekeepers and others interested with the Western Classification Committee. Now for the benefit of southern beekeepers as well as the trade we ask for a similar campaign with the Southern Classification Committee, which holds a meeting in Baltimore in February. Write to the Chairman, W. R. Rowe, 816 Grant Building, Atlanta, Ga., presenting your arguments for more equitable classification of comb honey, asking especially for a lower class on comb honey packed in carriers, as provided for in both the official and Western classification. In our experience in shipping millions of pounds there is practically no loss when protected by carriers properly made and packed.

HOTBED SASH.

The season is here again when hotbed sash are needed for growing plants under glass during the cold winter months. We are offering our choice quality cypress sash shipped K. D. at the same price as formerly; but the price of glass is higher. The sash as regularly furnished are 3 ft. 4 in. wide, 6 ft. long, for four rows of 8-in. glass slid into grooves in the bars with ends butted together. We also furnish them with bars rabbeted, when so specified, at the same price:

One sash, K. D., \$1.00.
Five sash, K. D., \$4.75.
Ten sash, K. D., \$9.00.
Glass 8 x 10 for same, \$4.00 per box of 90 lights; five boxes at \$3.80.

We are prepared to make special sash to order, including those with double tier of glass. Prices quoted on application, naming style and quantity required.

SECOND HAND FOUNDATION-MILLS.

We have for sale the following list of second-hand foundation machines which will serve a good purpose for those who want to make up their own foundation. We can submit a sample from any mill in the list to any one interested, on application.

No. 0153, 2 1/2 x 6 hexagonal thin-super mill in very good condition. Price \$14.00.
No. 0156, 2 1/2 x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.
No. 0165 2 1/2 x 6 hexagonal extra thin-super mill in fair condition. Price \$10.00.
No. 0183, 2 1/2 x 6 hexagonal thin-super mill in very good condition. Price \$14.00.
No. 0230, 2 1/2 x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.
No. 0234, 2 1/2 x 6 extra thin-super mill in very good condition. Price \$12.00.
No. 0237, 2 1/2 x 6 thin-super mill in fair condition. Price \$10.00.
No. 0238, 2 1/4 x 6 thin-super mill in fair condition. Price \$10.00.
No. 0239, 2 1/2 x 10 medium-brood mill, hexagonal cell, in fair condition. Price \$18.00.
No. 0245, 2 x 10 hexagonal medium-brood mill in very good condition. Price \$18.00.
No. 0247, 2 1/2 x 10 hexagonal medium-brood mill in fair condition. Price \$18.00.

SUNDAY SCHOOL TIMES.

This is, without doubt, one of the most helpful and interesting family religious weekly papers published. No change in price is announced for the new year. It is particularly helpful in Sunday-school matters. The regular price is \$1.50 a year. In clubs of five or more, \$1.00. We shall be sending in our Medina club this month; and if any of our readers not having the opportunity of joining a club in their own Sunday-school or town want to join our club they may do so on the following conditions: The subscription should be sent during the month of December—the earlier in the month the better. Send one dollar along with your renewal to GLEANINGS at one dollar, or two dollars for both. If you send after December, your subscription will be for only part of a year, ending with our club in December, or you will have to pay \$1.50, the regular price for a full year.

A B C AND X Y Z OF BEE CULTURE.

Work on the new edition of this book has been interrupted by one thing and another to such an extent that we see little hope of completing first copies till some time in February. In the meantime the old edition is entirely exhausted. We have secured and made available on orders every copy of the old edition on hand here and at our branches and agencies, so far as we have been able to locate them. If any of our readers have or know of any new or uninjured books available we should be glad to hear from them, stating the number of copies, the date of the edition, and the price at which they will be furnished.

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you must create and sustain a demand. . . No-thing better for this purpose than our stickers.



Printed on high-grade gummed paper, with a rich red ink, they will add to the appearance of your stationery. . . 35c per 1000 postpaid

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Bees, Fruit, and Poultry

An ideal combination for the small-place owner. Gleanings in Bee Culture, Green's Fruit Grower, and American Poultry Advocate are the highest authority on these three subjects. Then why not take advantage of our low-price clubbing offer of all three journals for one year for only \$1.00? . . . Write today.

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HOW TO KEEP TRACK OF YOUR SUBSCRIPTION.

The date on the address label shows the time to which your subscription is paid; Jan. 17 means that your subscription is paid to January, 1917. Renew within the month before the expiration of your subscription to avoid missing any copies. It takes a month to change date on label, or to put a new name on our mailing list after we receive the subscription.

"The world hated them because they are not of the world, even as I am not of the world."

I have been experimenting with a few bees here the past summer, making four good colonies out of one. I am taking GLEANINGS, and like it very much; but, most of all, I enjoy "Our Homes." I am glad you are situated to do so much toward bringing in the kingdom. There is a crying need for men of your type just now, or, I should say, Christians of your type—the "not afraid of public opinion" sort. What we need at present is not more battleships and soldiers, but more saints. The average Christian today is too much hand in hand with the world. We need to get back to the place where every Christian, as such, was at war with the world. May you be given strength and wisdom from the never failing source to carry on the work.

Pittsburg, Sept. 29.

ANNA H. DAWSON.

Be Efficient in BEE CULTURE

Grasp the experience of others in beekeeping by reading the best that has been published. The pamphlets and books listed below compel interest. Place a X in the margin opposite the publication wanted.

- ☐ THE DEVELOPMENT OF THE APPLE FROM THE FLOWER. By O. M. Osborne. Here's the latest scientific information about why apple blossoms can not do without bees. Free.
- ☐ MY FIRST SEASON'S EXPERIENCE WITH THE HONEYBEE. By "The Spectator," of the *Outlook*. A leaflet humorously detailing the satisfaction of beekeeping. Free.
- ☐ CATALOG OF BEEKEEPERS' SUPPLIES. Our new complete catalog, mailed free to any address on request.
- ☐ THE BEEKEEPER AND FRUIT-GROWER. Do you know that bees are necessary in modern fruit culture? This 15-page booklet tells how beekeeping is doubly profitable to the fruit-grower. Free.
- ☐ SPRING MANAGEMENT OF BEES. The experience of some successful beekeepers on solving this perplexing problem. Price 10 cents.
- ☐ THE USE OF HONEY IN COOKING. Just the thing for the up-to-date housewife. Price 10 cents.
- ☐ BEES AND POULTRY, how they work together profitably for others—why not for you? Some valuable pointers on hens and honeybees. Free.
- ☐ HOW TO KEEP BEES. A book of 228 pages detailing in a most interesting manner the experiences of a beginner in such a way as to help other beginners. Price \$1.00 postpaid.
- ☐ THE A B C OF BEE CULTURE. A standard encyclopedia on bees. The largest and most complete published anywhere. 712 pages, fully illustrated. \$2.00 postpaid.
- ☐ WINTERING BEES. A digest of all the information on the subject. Thoroughly modern and practical. Price 10 cents.
- ☐ THE BUCKEYE HIVE, or the management of bees in double-walled hives. Will interest the amateur especially. Illustrated. Price 10 cents.
- ☐ SWEET CLOVER, the all-around forage crop. Just off the press. Investigate this astonishing plant. Free.
- ☐ ADVANCED BEE CULTURE. A summary of the best ideas of experts in apiculture. The book is beautifully printed and bound. 205 pages. Cloth, \$1.00 postpaid.

Be sure that the following coupon is carefully filled out.

The A. I. Root Company, Medina, Ohio.

Please send me the items checked above.

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